

**INTERNATIONAL BANKING & FINANCE:
AN AMERICAN PERSPECTIVE**

FIELD HEARING
BEFORE THE
**SPECIAL COMMITTEE ON THE
YEAR 2000 TECHNOLOGY PROBLEM**
UNITED STATES SENATE
ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

ON

ASSESSING THE YEAR 2000 PREPAREDNESS OF FOREIGN COUNTRIES
AND DETERMINE JUST WHERE AND HOW THE UNITED STATES MAY
BE VULNERABLE

JULY 6, 1998

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YEAR 2000 TECHNOLOGY PROBLEM

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INTERNATIONAL BANKING & FINANCE: AN AMERICAN PERSPECTIVE

MONDAY, JULY 6, 1998

U.S. SENATE,
SPECIAL COMMITTEE ON THE YEAR 2000
TECHNOLOGY PROBLEM,
New York, NY.

The committee met, pursuant to notice, at 10:10 a.m., in the Ceremonial Chamber, U.S. Courthouse, 500 Pearl Street, New York, NY, Hon. Robert F. Bennett (chairman of the committee), presiding.

Present: Senators Bennett and Moynihan.

OPENING STATEMENT OF HON. ROBERT F. BENNETT, A U.S. SENATOR FROM UTAH, CHAIRMAN, SPECIAL COMMITTEE ON THE YEAR 2000 TECHNOLOGY PROBLEM

Chairman BENNETT. Good morning. Welcome to the second hearing of the Senate Special Committee on the Year 2000 Technology Problem. I want to express particular thanks to Senator Moynihan for inviting us to this hearing in this lovely city on a lovely summer day, and these magnificent surroundings. I appreciate Senator Moynihan's hospitality and his leadership in putting together today's panel of witnesses. As we have divided up the committee assignments, Senator Moynihan has taken on the assignment of working on the financial services industry, and we are very glad to have someone with his background and expertise handling this particular area.

As I flew here from Salt Lake City yesterday, I shared a seat in the airplane with the head of one of Utah's principal financial institutions. He was on his way to Istanbul where they were looking at a joint venture activity, and in the course of the conversation, the Year 2000 came up, it always comes up in every conversation I have these days, it seems. He said the obvious, but I think it's the theme for today's hearing. He said, "We know a great deal about the problem, and what scares me to death is what we don't know about the problem and where it can rise up to bite us." He said, "We will be ready in all the ways that we can, and we're still very much concerned about having problems."

I got involved in this issue about a year ago as chairman of the Subcommittee on Financial Services and Technology in the Senate Banking Committee, held the first hearing to talk about the readiness of the banking community for the Year 2000 and when I got through with the hearings, Senator Dodd, who had stayed through the whole proceeding said to me, "Mr. Chairman, we need another

hearing," and of course he was absolutely right. We not only had other hearings, but we have a committee created by the Senate to go beyond the jurisdiction of the Banking Committee.

Out of that series of hearings in the Banking Committee, I have come to the conclusion that financial services in the United States are probably in pretty good shape, and that we are looking at getting most of our problems under control. I have also come to the conclusion that when you go beyond our shores and talk about what might happen worldwide, it's time to get very, very nervous, and so the witnesses that we have this morning are going to tell us either that we're right in our assumption that everything is OK, or will be OK in the United States, or that we still have much to do, but I'm looking forward to having them give us their assessment of what things are going to be overseas and the interaction between the United States and financial services abroad.

We have a panel of expert witnesses to help us consider this issue, and we're grateful, as I say, to Senator Moynihan for putting this panel together. Senator, thank you so much, and we're glad to hear whatever comments you might have.

**OPENING STATEMENT OF DANIEL PATRICK MOYNIHAN, A U.S.
SENATOR FROM NEW YORK**

Senator MOYNIHAN. I'm glad to welcome you to New York, to our new Federal Courthouse here in Foley Square. It is an attractive room and it has light, which is what we're going to shed on this subject.

To say, sir, that my understanding of the matter is very much yours, that our institutions domestically are going to be probably all right, but their associated activities overseas could bring them real problems. I know that Chairman Levitt of the Securities and Exchange Commission feels that and of course we're going to have Dr. Lindsey talking about that this morning.

Just a quick background for me. I'm very pleased that our first witness will be John Westergaard, who is an old and dear friend, and who brought this to my attention and to the attention of people who subscribe to his on-line services. I had legislation in the last Congress and this year I have S. 22, legislation posing a National Commission on Y2K. We have a National Commission finally in your person.

My question is, however, time is running very fast. We don't have until the Year 2000. We have until sometime early next year, because companies need to start testing soon. Our witnesses can give us some sense of that moment in 1999, because I think that would help us.

With that said, we'll get on with our hearing.

Chairman BENNETT. Thank you. I will say that in that first hearing to which I referred, we were told that if the banking system did not have the Year 2000 conceptually solved and all of the factions ready to go by September of 1998, it would be too late. I asked why that's so, and they said because we're going to have to have the ensuing year for testing purposes, and we can really only test on weekends when we can shut the system down and put the new software on the computer and that gives us about 60 days worth of weekends, and 60 days is a pretty scary, short period of

time. So I say that in advance, just in case there's any witness listening who is prepared to contradict that or reaffirm that.

Senator MOYNIHAN. Good benchmark.

Chairman BENNETT. OK, thank you. Mr. Westergaard, if you would come, please, we would be delighted to hear you, sir.

**STATEMENT OF JOHN WESTERGAARD, EDITOR AND
PUBLISHER, WESTERGAARD ONLINE SERVICES, INC.**

Mr. WESTERGAARD. Thank you. Good morning. Can everybody hear all right?

Chairman BENNETT. Yes indeed. These speaking machines, as Senator Thurmond refers to them, are much better than they are at the Senate.

Mr. WESTERGAARD. Thank you for inviting me here today. My name is John Westergaard, I am founder, editor, and publisher of Westergaard On Line Systems, a publisher of Internet webzines, which is cybertalk for magazines on the Internet. We also conduct investment conferences and have so for 21 years.

We publish Westergaard Year 2000, a daily webzine providing information and analysis of the Year 2000 millennium bug, which I will refer to here as simply Y2K. Westergaard Year 2000 publishes several dozen expert columnists who regularly contribute commentary covering virtually all aspects of the Y2K problem.

Westergaard Year 2000 is published as a not for profit public service under the editorship of Adam Kaplan, who is here, and his assistant editor, John Yellig, who is also here. Its Internet address is www.y2ktimebomb.com. It receives thousands of visitors daily from some 80 countries and is recommended as a Y2K resource by the World Bank and Federal Reserve, among others.

I understand of course that the focus of this hearing is to be the international financial and economic aspects of the Y2K problem. I'll get to that. But first allow me to state some views with respect to the handling of Y2K compliance by the Federal Government from a perspective of having observed the issue develop at close hand for the past 2½ years.

I do so because the main point I hope to impress upon this committee is the need for the President, the Department of Defense, our United Nations representatives, and the Secretary of the Treasury, among others, to exert leadership in alerting the world to the Y2K problem and to provide technological assistance in achieving date compliance. And I have to say the evidence to date is not encouraging in that respect.

I fear historians will not treat the Clinton administration well for its management of a crisis which promises to be the defining event of the second term. Congress will fare better thanks in main to Senators Bennett and Moynihan of this Special Committee who have played early leadership roles in sponsoring Y2K awareness, and to Congresspersons Steve Horn and Carolyn Maloney for the excellent hearings of their Committee on Government Reform and Oversight.

On the executive side, and again we follow this very closely on a day-to-day basis, the agencies testifying immediately following me here today, the Federal Reserve, and the SEC, have been well

ahead of the curve on this issue. The General Accounting Office, GAO, has done outstanding work.

The Office of Management and Budget, on the other hand, appears to have focused on papering the problem over and has hampered Y2K remediation programs at the State level by projecting absurdly low Federal estimates of remediation costs. This has caused supplemental budget requests of State officials to appear high in contrast, invoking thus the skepticism of State legislators.

The most egregious Y2K compliance offender, considering the strategic importance of its mission and the vast resources and planning abilities available to it, has been the Department of Defense. As recently as last week, the GAO issued a report sharply critical of the Navy's compliance status. The Army and the Air Force are also in serious trouble over Y2K. As for the media, with the exception of the Washington Post, USA Today, and the Financial Times of London, the general press here and abroad has failed miserably in addressing the crisis. As recently as November, for example, the Los Angeles Times was calling Y2K basically a hoax, ironically at the very time, this was the lead front page, right-hand column story, ironically at the very same time that their internal operations people were struggling over allocating resources to meet compliance deadlines.

The Wall Street Journal's coverage has been abysmal. I was told last year by a Journal reporter that his editors weren't interested in the Y2K story because it had already been told. That's the equivalent of reporting the attack on Pearl Harbor on Monday morning, December 8, 1941 and then advising readers the next day, oh, that story? We told you yesterday there's a war on.

Y2K may not be a war, but neither is it a one-day story. It is an event that will encompass 6 years, by my count, from 1996 through 2002, and of course earlier, there will become cleanup I'm sure later. Think of it as a plague, an electronic bubonic, what I call it.

However extreme my comments may appear, let me assure the committee that my view of the Y2K is not apocalyptic. There will be a worldwide Y2K recession, but there have been recessions in times past. The world has survived them and often been the better for the experience. I am in fact a congenital optimist and have great confidence as to the ability of the U.S. Government, the business community and the financial community to eventually work their way through Y2K.

I foresee a period encompassing the first 6 months of 2000 as being equivalent to the first half of 1942, Pearl Harbor to the Battle of Midway, during which the U.S. mobilized for war. Enormous positive energy and creativity was unleashed then and I expect the same to happen this time.

I come here today not as a computer expert by any means, but as an investment strategist who has a history of spotting financial and economic trends early. That's not because I'm smart. It's because I have published investment research on emerging small companies for 40 years run by entrepreneurs typically engaged in promoting new business opportunities. I have thus tended to have an early look at new trends. It was just such an entrepreneur seeking new research sponsorship and capital, Bob Gruder of Alydaar

Corporation, who introduced me to Y2K in December, 1995. I immediately took the matter to my friend of 40 years, Senator Pat Moynihan, who was incredulous as was everyone then and as many still are, but in keeping with his academic discipline, the Senator requested that a study be prepared by the Congressional Research Service.

CRS reported back within a few months substantiating in full the issues I had raised. As an aside, is it not curious that the two legislators who were first to recognize and take action on Y2K are former college professors; Senator Moynihan and Congressman Horn? Perhaps we should be electing more college professors to public office. Isn't it also curious that others in Washington who have quickly grasped the Y2K issue have backgrounds in business, to wit, Senator Bennett and SEC Chairman Arthur Levitt? Perhaps we should be electing more business people as well.

Senator Moynihan advised the President of Y2K by letter in July, 1996 and recommended appointment of a Manhattan Project-style Y2K Czar to direct Federal compliance. A perfunctory response, at least I call it that, was received in November, not directly from the President, but from Frank Raines at OMB. The Senator then arranged a meeting with Secretary of the Treasury Bob Rubin and Assistant Secretary Larry Summers on December 14, 1996 in which I participated. Rubin and Summers were generally aware of the problem. We learned that Treasury was then budgeting circa \$75 million for Y2K, I don't recall the exact number. According to a recent report, the figure in just 15 months has blossomed to \$800 million. And that doesn't include the agencies for which it is responsible.

The first public——

Chairman BENNETT. If I can interrupt you, sir, I had dinner with Secretary Rubin 2 months ago and he told me the number at Treasury, not including the IRS, was \$1.4 billion.

Mr. WESTERGAARD. Not including IRS?

Chairman BENNETT. Not including IRS, so it has gone up, as you've indicated, very rapidly. Excuse me.

Mr. WESTERGAARD. The first public acknowledgement of Y2K, to my knowledge, by the White House occurred on August 15, 1997, a full year after the Moynihan letter, when the President stated at a press conference that Americans need not worry about the computer clock problem. The appointment of John Koskinen as Federal Y2K Czar in February of this year was the first sign that the White House is taking the Y2K matter seriously, as far as I know.

Senator Moynihan and I met with Mr. Koskinen at the end of March and I am pleased to say that he left me and I believe the Senator with a comforting sense that an adult has been placed in charge. I believe Mr. Koskinen occupies the fourth most important position in America today after the President, Fed Chairman Greenspan and Treasury Secretary Rubin.

So what should the Senate be looking at and thinking about in respect to the Y2K problem as it relates to international economic and financial considerations? I will make a few predictions employing inferential analysis to create three "what if" scenarios. Given the speculative nature of Westergaard scenarios, they are as often

wrong as they are right, but you can be sure they are never in doubt.

Scenario No. 1: Does Y2K reflect God's will? At year 1000, Europe was engulfed with random violence and fear that the world would end. Out of this chaos emerged a new social order as Christianity spread through Northern Europe. Russia converted in 988, followed by Poland, Norway, Iceland and Greenland in 999–1000. By way of background, I refer the committee to James Reston, Jr.'s recently published "The Last Apocalypse: Europe at the year 1000 A.D."

Saddam Hussein will interpret Y2K as retribution from an Almighty aimed at punishing technological infidels. He will interpret it as a call to attack Kuwait and Saudi Arabia. He will assume, with good reason, that Y2K will leave the U.S. military incapable of mounting a large scale military response.

The financial and economic impact of a move south by Saddam in the beginning of the Year 2000 will be chaos in the world petroleum market, sharply higher oil prices, inflationary pressures and consequent strains on international banking and industrial systems of unpredictable magnitude.

My recommendation: The Department of Defense should be directed to prioritize Y2K compliance to mission critical systems needed to meet another Saddam challenge. It will be prudent to move troops into the region in late 1999 to counter the risk of continuing Y2K complications following the millennium turn would render impossible a timely response to Saddam.

Scenario No. 2: World recession 2000. To understand business cycles, consider traffic backing up 20 miles on the New York State Thruway as drivers rubberneck even the most minor accidents. That is analogous to what will happen to the world economy in 2000. It will back up as transactions of every type, shipments of goods, travel, communications, payments, you name it, will slow down, even if only fractionally. It is improbable that a worldwide recession can be avoided under such circumstances. The question isn't will there be a recession, it is how bad will it be?

Recommendation: For example, a slowdown in health care reimbursement systems worldwide will leave hospitals and other caregivers short of cash to pay employees, of which there are some 10 million in the United States alone. Emergency funding will be required to provide systemic liquidity. Appropriate legislation needs to be prepared now for introduction in 1999 in the United States and worldwide to provide emergency liquidity to the health care system. The United States with the world's most advanced and respected health care systems should exercise leadership in alerting health care officials worldwide to the risk of slow payments and to potential Y2K-related risks in the application of medical devices. Certain devices will be non-functional due to non-compliant software and non-functional chips.

Upcoming confirmation hearings of Richard Holbrook to the post of U.N. ambassador will provide the Senate with a forum for recommending that an active role be taken by the U.S. delegation and alerting member states, the World Health Organization and other U.N. agencies to the Y2K issues. I have no idea how active and

how knowledgeable or not the United Nations organization is on this issue, but I think some focus in that area is appropriate.

Chairman BENNETT. I'm just pointing out the red light is on.

Mr. WESTERGAARD. Am I running too long?

Chairman BENNETT. If you're ready to sum up.

Mr. WESTERGAARD. One more page.

Scenario No. 3: Brownouts and blackouts. There will be spot shortages of worldwide electrical power. Nuclear generating plants will be shut down to allay public fears of meltdowns. The French economy with its proportionately large 40 percent reliance on nuclear power will be hard hit.

Recommendations: Conventional power generating plants are less computerized than one might suspect, but there will be minimum brownouts in the United States and worldwide in 2000. The nuclear issue will be resolved by shutting down nuclear plants over millennium weekend and bringing them back on stream one by one to assure the public that plants are safe. The Department of Energy needs to take a leadership role in promoting Y2K awareness of energy related Y2K issues domestically and abroad.

Just in closing, these scenarios represent no more than a passing insight into the Y2K problem. I have not touched on Japan, the second largest economy, which remains in abject denial over Y2K, nor China with the largest population. China, on the one hand, benefits from a proportionately low level of computer dependency, but suffers from employing large amounts of pirated software, leaving it without access to vendor assistance for remediating code.

I could go on for the rest of the morning. More than a thousand pages of information, research, analysis and commentary covering every aspect of the Y2K problem can be found at our webzine, Westergaard Year 2000 www.y2ktimebomb.com. I trust the committee and its staff will employ this resource, register for our free daily E-mail alert service and feel free to contact me and the editors via E-mail or phone any hour, any day, anywhere.

[The prepared statement of Mr. Westergaard can be found in the appendix.]

Chairman BENNETT. Thank you very much. I assure you, we are in touch with your web site. The staff checks there on a daily basis.

I have one comment on your very excellent presentation. I have visited two nuclear plants here in the United States, because I have the same concern that you do, and I've come to the conclusion that conventional wisdom to the contrary, the nuclear plants probably present less of a Y2K problem than the other plants. The reason being, No. 1, they are the most heavily regulated of all of the power producing plants in the United States, and therefore felt the pressure from not the Department of Energy, but from the Federal Regulatory Commission and the Nuclear Regulatory Commission, who have inspectors in their plants all the time. So in that sense they're a little bit analogous to the banks that are under pressure from the Fed and the FDIC, and they have perhaps a better handle on the Y2K issue than some of the other utilities.

Second, perhaps because of their sense of perceived or real persecution in the energy-generating business, they formed something of a club. The nukes talk to each other, and share information. They recognize they have a public perception problem, everyone is con-

cerned the nuclear energy system is going to melt down to China, and so they work harder at redundancy and safety, and they talk to each other for that public relations purpose and as a result there's been a better exchange of information between nuclear power generators in this country than there has been from some of the others. So I came away from that experience saying the nuclear power plants are in better shape than I thought they were, and that the problem of brownouts and blackouts, which I think is a very real possibility, will come in large part, from other sources on the power grid.

Mr. WESTERGAARD. I agree with everything you're saying. I'm just suggesting that the public, there will be a public clamor to shut down nuclear energy for some period of time, that there will be enough scare stories out there that the nuclear power plants will probably be wise to shut down.

Chairman BENNETT. OK, I get that distinction. Senator Moynihan?

Senator MOYNIHAN. No, that's interesting and reassuring. It's not the worst thing to have some reassuring news. Thank you, Mr. Westergaard, thank you, John.

Chairman BENNETT. Thank you very much, sir. We appreciate it.

All right, we are now at 10:30. We have three additional panels. Senator Moynihan suggests, and I concur, that we allow each of the additional panels a half hour. We have two witnesses per panel, so that would mean perhaps 10 minutes, 12 minutes for opening statements and then some time for questions and discussion afterwards.

So first, we have Ernest Patrikis, first vice president of the Federal Reserve Bank of New York and Dr. Richard Lindsey, director of the Division of Market Regulation at the U.S. Securities and Exchange Commission. Gentlemen, we are grateful to have you both here and appreciate your willingness to give us your insights. Mr. Patrikis, we'll go with you first.

**STATEMENT OF ERNEST T. PATRIKIS, FIRST VICE PRESIDENT,
FEDERAL RESERVE BANK OF NEW YORK**

Mr. PATRIKIS. Thank you. Good morning, I'm pleased to be here before the committee today to discuss the progress of foreign financial markets in addressing the Year 2000 technology problem. I'm appearing in my capacity as chairman of the Joint Year 2000 Council, which is sponsored jointly by the Basle Committee on Banking Supervision, the G-10 Central Bank Governors' Committee on Payment and Settlement Systems, the International Association of Insurance Supervisors and the International Organization of Securities Commissions, which I will refer to as the sponsoring organizations.

This morning I'll summarize the information provided in my submission to the committee.

Who is at risk from the Year 2000 bug? All organizations that are dependent on computer software or embedded computer chips are at risk. I believe this definition encompasses all significant financial institutions and markets worldwide. All countries of the world, therefore, have a Year 2000 problem. That must be the starting point for any discussion of the global scope of the problem.

No countries have the same Year 2000 problem. For example, the United States is one of the world's biggest and long-standing users of computers. Our Year 2000 problem is, therefore, larger than almost anyone else's. It is a very positive development that so much good work is being done in the United States, especially within the banking and financial sectors. Should we be concerned, however, about the readiness of other foreign financial markets?

Could a lack of preparations of foreign jurisdictions have an impact on the financial institutions of the United States? Inevitably, the answer is yes, although the extent of that impact is difficult to assess at this time with any degree of confidence. To provide a context for understanding these issues, I'd like to briefly discuss some key linkages that exist within the systems that are used by financial market participants to undertake their transactions. As an example, consider the daily financial market activities of a hypothetical U.S. based mutual fund holding stocks and bonds in a number of foreign jurisdictions. Such a mutual fund would likely execute trades in relationship with a set of securities dealers, who themselves might make use of other securities programs, including some inside the United States. In addition, securities trading in most countries is reliant on the proper functioning of the respective exchanges, trading systems and financial information systems, as well as the national telecommunications infrastructure on which these systems depend.

For record keeping and settlement purposes, our hypothetical mutual fund would also likely maintain relationships with one or more global custodians who themselves typically maintain relationships with a network of subcustodians located in various domestic markets around the world. Actual settlement of securities transactions would typically occur over the books of a domestic securities depository. Payment for foreign exchange transactions on behalf of the mutual fund would involve use of correspondent banks for both the U.S. dollar and other currencies.

These transactions would typically settle over the books of domestic wholesale systems, such as the Clearing House Interbank Payments System, CHIPS, or Fedwire in the United States and the new TARGET system for the euro. Correspondent banks also heavily depend on the use of cross-border payments messaging through the network maintained by the Society for Worldwide Interbank Financial Telecommunications, SWIFT, to advise and confirm payments.

To provide some sense of the magnitudes involved here, consider that the Fedwire and CHIPS systems process a combined \$3 trillion in funds on an average day, split roughly in half between the two systems. While SWIFT itself does not transfer funds, its messaging network carries over 3 million messages per day relating to financial transactions worldwide.

I would not like to debate Senator Bennett on this issue, but rather embellish it. In Fedwire, depository institutions can test the Year 2000 issue with us every day. There's a separate computer set aside for us, and weekends are designated test dates which can also be coordinated test dates. We're trying for a worldwide coordinated test using SWIFT, Fedwire, CHIPS, DTC, so I would differentiate today between a specific day set aside for specific testing,

and generally available testing every day of the week, which we encourage institutions to do sooner rather than later.

The many interconnections of the global financial infrastructure imply that financial market participants in the United States could be affected by Year 2000 disruptions in other financial markets. In assessing the scope of any such potential problems we should be realistic in accepting that some disruptions are inevitable. The problem simply affects too many organizations and too many systems to expect 100 percent readiness will be achieved throughout the world. Today it would be impossible to predict the precise nature of these disruptions. However, we do know that financial markets have in the past survived many other serious disruptions, including blackouts, snowstorms, ice storms, and floods.

Can financial markets supervisors and regulators help? Yes, but there are limits on what we can accomplish either individually or collectively. Only firms themselves have the ability to address the Year 2000 problems that exist within their own organizations. Only firms working together can assure that local markets will function normally. Supervisors and regulators cannot guarantee that disruptions will not occur.

What can supervisors do? At the international level, each of the major financial supervisory organizations developed action plans during 1997 for their respective areas of interest; banking, payments and settlements, securities, insurance. Yet when these organizations co-sponsored a Global Conference on the Year 2000 Problem this April in Basle, they realized it made sense to combine forces and coordinate their activities to ensure their messages were getting through loud and clear throughout the world. It was at this point that the Joint Year 2000 Council was formed. The Council consists of senior members of the four sponsoring organizations. Every continent is represented by at least one member of the Council. The Secretariat of the Council is employed by the Bank for International Settlements.

The mission of the Joint Year 2000 Council has four parts: First, to insure high level attention to the Year 2000 computer challenge within the global financial supervisory field. Second, to share information on regulatory and supervisory strategies and approaches. Third, to discuss possible contingency measures, and fourth, to serve as a point of contact with national, international, and private sector initiatives.

The G-7 finance ministers have recently called on the Joint Council and its sponsoring organizations to monitor the Year 2000 related work in the financial industry worldwide, and to take all possible steps to encourage readiness. The Council has met twice since being formed in early April and plans to meet frequently, almost monthly, between now and January 2000.

We have also formed and met with a consultative committee intended to enhance the degree of Year 2000 information sharing between the public and private sectors. While the Joint Year 2000 Council will not be in a position to ensure Year 2000 readiness in every financial market worldwide, I believe we will play a positive role in three areas: Raising awareness, improving preparedness, and contingency planning. To help raise awareness of the Year 2000 efforts underway globally, we will maintain an extensive

worldwide web site, including a web page for each country in the world where Year 2000 activities and contacts for that country will be available. The presence of these country pages is intended to assert peer pressure on those countries where more vigorous action is needed.

The Joint Council will be taking initiatives to improve preparedness, and providing support for the concept of a national level coordinating body for the Year 2000 problem. The Joint Council plans to issue a paper within the month aimed at improving supervision and readiness worldwide from a level of general awareness to a specific concrete program of action overseeing Year 2000 preparedness. We will develop a Y2K self assessment tool to be used broadly by the financial industry in every country.

While there is still not enough information on the preparedness of financial institutions to be able to make confident statements about the state of global preparations in any detail, we hope to be able to use the Joint Council as a means of gathering a better picture of the state of local preparations and help to direct resources and attention to those regions where more efforts are needed. In these instances our first step would be to work through the relevant financial supervisors and regulators and to also involve multilateral institutions, such as the World Bank, to help increase national attention on the issue. I note that the government of the United Kingdom has given 10 million pounds to the World Bank to help fund these efforts.

The Joint Council will also encourage all firms and institutions active in the financial markets to engage in internal and external Year 2000 testing. Testing is the most critical element of serious Year 2000 preparations. We will build on existing efforts to develop and publicize information regarding testing of major payment and settlement systems around the world. We will collect information regarding industry wide tests of all aspects of the trading and settlement infrastructure worldwide and we'll use this as an exercise in peer pressure. It will be clear which countries do not respond to our requests for information on their testing programs. The Joint Council will also develop a series of documents to help countries set up testing programs as rapidly as possible.

The third major role of the Council will relate to contingency planning. We will develop a paper on this topic for the benefit of the global financial supervisory community. This paper will seek to address firm level contingencies as well as issues of market-wide contingencies. Contingency planning involves a series of elements, many of which must be put into place well before January, 2000. For example, we must consider the many possible sources of disruption and determine what approaches would be available to limit their impact. The sooner such thinking occurs, the more opportunity we have to plan around the possible disruptions. Of course, we will not be able to predict each source of disruption, but our work in this area should help us deal better with disruptions.

Much more work is needed on contingency planning for the Year 2000, especially at the international level. Once we get beyond the early fall of this year, I believe these efforts will begin to receive much greater focus and attention, and will dominate our discussions of the Year 2000 in 1999.

In closing, I would like to thank the committee for the opportunity to appear and submit a statement on this issue. I hope the efforts of the Joint Council will help make a difference in the state of Year 2000 preparations of the international financial community. Realistically, however, I believe that it is important to realize our concern must be with the system as a whole. At this point, I believe we are doing everything possible to limit the possibility that Year 2000 disruptions will have systemic disruptions in our markets. But we must work cooperatively in the time that remains to insure that this threat does not become more concrete.

And, Mr. Chairman, I would like to end my remarks by commending the committee for organizing these hearings on foreign international markets in addressing the Year 2000 technology problem. Thank you very much.

[The prepared statement of Mr. Patrikis can be found in the appendix.]

Chairman BENNETT. Thank you very much.

Dr. Lindsey.

STATEMENT OF RICHARD R. LINDSEY, DIRECTOR OF DIVISION OF MARKET REGULATION, U.S. SECURITIES AND EXCHANGE COMMISSION

Mr. LINDSEY. Good morning, Senator Bennett, Moynihan. I appreciate the opportunity to testify today on behalf of the Securities and Exchange Commission about the steps it has taken to ensure Year 2000 compliance in the securities industry and publicly held companies. The Commission has prepared a written statement and I ask that it be included in the record of these hearings.

Chairman BENNETT. Without objection.

Mr. LINDSEY. It has become clear that most of the world's computer systems need to be modified before January 1, 2000. In the U.S. securities industry, the scope of the Year 2000 challenge is magnified by several factors: The industry is enormous. There are over 8,300 registered broker dealers, 1,100 investment company complexes, 1,248 transfer agents and 24 self-regulatory organizations, including the Exchanges, NASD, and clearing agencies.

Second, the industry relies heavily on information processing technology and finally, industry participants are highly interconnected, both within the United States and globally.

For these reasons, the commission views the Y2K problem as extremely serious and one that requires an industry-wide solution. If the securities industry fails to properly assess the extent of the Y2K problem, or fails to remediate systems that are not compliant, there is a potential to endanger the nation's capital markets and the safety of the assets of millions of investors. Nevertheless, based on the information we have received so far, the SEC believes that the securities industry is making substantial progress towards addressing systemic risks to the U.S. financial system as a result of the Y2K technology challenge.

We've stressed to the securities industry how important it is to be compliant on time and that we will have zero tolerance for those entities that do not exert the necessary effort. In the securities industry, just like any other business, the compliance process has five phases; awareness, assessment, remediation, testing and con-

tingency planning. Let me briefly mention the commission's efforts in each of these areas.

Throughout 1996 and early 1997, we focused on raising the awareness of the Y2K problem in the securities industry and the need to fix it. Through our efforts, combined with those of the SRO's and the Securities Industry Association, extraordinary steps were taken to alert the securities industry to both the scope and the nature of the problem. During the past year, the commission shifted its focus from educating members of the industry to monitoring and encouraging their progress in solving the problem. We monitor their progress through direct oversight and examinations, as well as through collaboration with self-regulatory organizations and industry groups.

The commission set 1997 as the target date for the remediation phase to be done. Testing is the next hurdle in the schedule and is to begin this month. The securities industry is based on an extraordinary interdependence of a great number of participants—broker dealers, exchanges, depositories, transfer agents, banks and suppliers of market information, among others, must all exchange, process, balance, confirm and settle millions of transactions every trading day. The interdependence among participants in the securities industry means that coordinated industry-wide testing is essential. In recognition of this, the SIA undertook to construct an unparalleled industry-wide testing program. Testing will not only tell us how well the industry is prepared for the Year 2000, but also help identify trouble spots for developing contingency plans.

Finally, there is contingency planning. No matter how much progress the industry makes in addressing the Y2K issue, it is virtually certain that some problems will not be discovered or will not be remediated in time. Consequently it's imperative that well defined contingency plans be formed to minimize the disruptive effect of these failures. Industry-wide efforts for contingency planning are being coordinated through a Contingency Planning Working Group, which is jointly sponsored by the Federal Reserve Bank of New York, the SIA, and the New York Clearing House. The working group was formed to share information on the industry's Y2K compliance efforts and to address potential systemic implications.

Let me now move to the current status of the various participants in the securities markets. Because they play a key role in both operating the nation's securities markets and in overseeing the companies and individuals who participate in those markets, the SRO's readiness for Year 2000 is particularly critical. The SRO's, which include the exchanges, clearing agencies, and the NASD have completed the awareness and assessment phases of the Y2K process. They are all far enough along in the remediation process to begin the first phase industry testing next week.

Broker dealers are the primary intermediaries between investors and the securities markets. For that reason, we have made it very clear to broker dealers that Y2K failures will have severe consequences. Any broker dealer that cannot maintain accurate books and records or cannot determine its net capital requirements because of a Y2K failure, could be subject to closure and the transfer of its customer accounts to another broker dealer. Under the U.S. system of self-regulation, the primary oversight responsible for

broker dealers resides with SRO's. To monitor broker dealer compliance efforts, the SEC has worked closely with the NASD, the NYSE and the SIA. Data obtained by the NASD and NYSE show that broker dealers have made significant but uneven progress. Current data suggests that slower progress has been made by some smaller firms. Going forward, the SEC and NASD staff will closely monitor the firms that appear to be lagging behind in their Y2K compliance efforts.

The commission staff is also engaged in ongoing efforts to evaluate the Y2K readiness of investment advisers and mutual funds. These efforts include on-site Y2K examinations and coordination with industry groups, such as the Investment Company Institute. Similarly, commission staff has examined non-bank transfer agents for Y2K compliance. The commission believes investment advisers, investment companies, and transfer agents have made progress toward its Y2K goals, but significant work remains to be done.

The adequacy of Y2K disclosure by public companies is another area of concern for the commission. Our regulatory framework requires public companies to disclose material information about themselves to the public. It is only through disclosure that investors are able to make informed investment decisions. Last year the commission staff issued a legal bulletin to remind public companies that the disclosure requirements under the Federal securities laws applies to the Y2K issue, and in January, the staff updated that bulletin to provide even more guidance. In addition, the commission has said that it intends to publish an interpretive release that sets forth its views regarding the application of SEC disclosure requirements to the Year 2000 issues. Chairman Levitt also plans to mail a letter to the chief executive officer of public companies reminding them of Y2K issues and of their disclosure obligations.

The globalization of the securities industry underlies perhaps the most difficult Year 2000 challenge. International efforts are a significant area of concern for the SEC. The work that remains to be done in South America, Africa, Asia, the eastern block countries, and certain European countries is enormous. Nevertheless, the SEC is doing what it can. Our primary means of encouraging other countries and foreign regulators to deal with the Year 2000 problem is through the SEC's membership in the International Organization of Securities Commissions or IOSCO.

Other international groups are also working on resolving the Y2K problem, including the BASLE Committee on Banking Supervision. In addition, internationally there is a forum, the Joint Year 2000 Council of which my co-panelist Ernest Patrikis is Chairman. The Joint Council has undertaken to serve as an information clearinghouse on Year 2000 issues, and to serve as a locus for international coordination of Year 2000 testing programs and contingency efforts. In addition, a number of banks and investment firms have formed The Global Year 2000 Coordinating Group.

Despite the efforts underway by global organizations, international Y2K efforts remain an area of significant concern. Risks from Y2K non-compliance abroad must be a major focus of contingency planning for U.S. firms.

In closing, the commission, the SRO's, the industry organizations, and other market participants are devoting extraordinary

time and resources to assessing and repairing our computer systems so they're prepared for the century date change. We are optimistic that if we continue emphasis on achieving domestic Y2K compliance and where we can help, international compliance, the securities markets will be prepared for the Year 2000.

[The prepared statement of Mr. Lindsey can be found in the appendix.]

Chairman BENNETT. Thank you very much. Mr. Patrikis, I would appreciate if you would comment on the impact of the euro on this issue. As a layman and a businessman, it's my understanding that the decisions are made separately by different bodies. Nonetheless, the decision to implement the euro in 1999 coming on the heels of the challenge of the Y2K problem in 1999 in the Year 2000 put an enormous, if not unbearable strain on the IT capacity of the various firms, particularly those involved in currency trading.

If I were running a business and people had come to me and said, No. 1, we need to make a change as substantial as the euro change and No. 2, it's coming on the heels of pressure from outside the company, I would say let's postpone the euro change until the other one has been absorbed and when I made that suggestion, people above my pay grade, they said, oh, it's far too late, you can't possibly do that.

Senator MOYNIHAN. Mr. Chairman, may I ask a question?

Chairman BENNETT. Sure.

Senator MOYNIHAN. Who could possibly be above the pay grade of a U.S. Senator?

Chairman BENNETT. Well, in the international arena I'm sure there are some.

I still have a great sense of foreboding that the preoccupation with getting everybody's computer changed to being able to do currency trading in euro futures, I understand the euro itself will not start circulating in 1999, but trading in euro futures in some cases has already begun, and certainly will be formally under way in January of 1999.

Is this in fact a contributory problem, or as someone suggested to me, is it a serendipitous event, where people, as long as they're working on the computer, changing it to deal with the euro will while they're there deal with the Year 2000 problem? What concerns should we have by virtue of the convergence of these two events?

Mr. PATRIKIS. Let me see if it's possible to agree with everything you've said.

Chairman BENNETT. You're beginning to sound like you're running for the Senate yourself.

Mr. PATRIKIS. Yes, I think there is some concern that there aren't enough people with the technical skills to do all the Year 2000 work period, today, even if there were no other changes, so I think what we're going to see in the United States, I know we're going to see it for Fedwire—we're making no major changes in 1999. I'm hoping that supervisors and regulators don't make rule changes in 1999, that we don't change reports that have to be submitted electronically. We want to take the burden off people to make changes in 1999.

As to the euro, it's not just a European problem. Our investment banks, of which all the major players are in Europe, are also going through the process of changing for the euro. It's not that hard a change compared to the Year 2000 change, but a lot of systems have to change. There is a question of whether firms are able at the same time they're making changes in their systems for the euro to be able to make changes for the Year 2000. Some of that can be done, but overall the concern is that yes, many European firms would be better off if they didn't have the euro coming and they would be able to devote more resources to Year 2000.

But we'll also have January 4, 1999 as a mini experiment to help us look forward to January 3, Year 2000 in terms of what problems will surface. How is the market able to cope with those problems, how well is the contingency plan being done for the euro if things don't work out right? So even if there's something a little negative there, we should be able to turn that into a positive.

But I think overall the constraints of having enough qualified people is a worldwide problem. Speaking of Mr. Guzman, who is the Superintendent of Supervisory Institutions in Chile, his concern in Chile is do we have enough people with the skills to be able to make the changes. Are the firms in those countries competing for staff members? To be a youngster with the skills for systems to make these changes is to really write your own ticket, so that's the major problem, only exacerbated a bit by the euro.

Chairman BENNETT. I'm going to ask you an unfair question, but we get asked unfair questions all the time.

My sense of things is that there are only five countries with a really high level of awareness and effort going on with respect to the Year 2000. I list them in no particular order. United States, Canada, United Kingdom—now with the involvement of Tony Blair—Australia, and the Netherlands.

Here's the unfair question: Would you put Japan into a ranking somewhere? This is the key economy in Asia, this is the economy that's now in difficulty in Asia and we're all worried about the Asia flu generally, but if Japan catches the Asian flu, we are in real difficulty. If Japan has a major Y2K problem, the earlier witness said they're in denial on Y2K, I'd like you to comment on Japan.

Mr. PATRIKIS. I can't answer the question in terms of giving you a precise statement as to the status of preparations. We do have a member of the Ministry of Finance on our Council. He's assured us that Japan is working on it, that the various official organizations are working on it. The Global 2000 Coordinating Group recently held a meeting in Hong Kong, with many there from Japan. I think I got, at least from the telephone conversation I had with people who attended that meeting, the view that they are working on it, perhaps not the same way we are. There's a question of whether their approach to resolving the problem is different than ours. The one thing I would totally discard is the thought that well, since we use a year system that's based by the year the Emperor has been in power, that we don't have the same problem as everyone else, that this is the X year of the Chrysanthemum dynasty. That's hogwash. They have the same problem we do. But the sense of the matter is they are working on it, but I couldn't say they're

at a level that we are, but I can't say that anyone is at the level that we are.

Chairman BENNETT. Do you have any country you might nominate for the list I've just given you?

Mr. PATRIKIS. Well, you know, just throwing something out off-hand, one member of our Council is from Saudi Arabia. He's well aware of the problem, and what needs to be done. I said we were going to have web pages for each country, those web pages are going to have utilities, telecommunications. He said, well, what about desalinization? So I think there are some countries out there that have done an awful lot of work.

As I said in my statement, we're not able to ferret that out now, but as we get people to submit information on our web page, people will go to www.bis.org and hit the Joint Council button. If there's no information on, say, an electric utility in that country, you can assume there's a problem. If they're not saying how they're doing the testing and the testing has been completed, that's how we thought we would ferret it out, make it available to everyone, put on some pressure.

We did it on the payments and settlement systems by having each system put out on the page that we have at BIS how they're doing on their testing schedule. That really would show how well they're doing and if a major system were not on the page, then we would encourage people to go to the system and say you're not up on the page, you must be behind and put pressure on them.

Chairman BENNETT. One last question, then I'll turn to Senator Moynihan. One of the things I'm trying to do in this committee is to look horizontally, because virtually everybody with respect to Y2K stovepipes his or her own organization or country or industry. I would be concerned about the telecommunications systems in some of the countries you're looking at, and the dependence that your broker dealer would have or your clearing house or your regulatory body might have, if the phone system goes down, you could have all of the computers just on, and the markets still fail to function. In your attempt to get a handle on how stable the international financial community is, do any of these organizations that you have listed here, and it's a very impressive list, pay attention to whether or not the power grid is going to fail or the telecommunications. If you can't get a dial tone in Singapore, for example, has anyone with respect to Y2K challenges that you're aware of looked at those issues?

Mr. PATRIKIS. Well, first is SWIFT, which is a communications system owned by commercial banks of the world and SWIFT has linkages to all countries. Therefore, it's dependent on the telecommunications of those countries. SWIFT will be one source of information on how well firms are doing.

One of the problems has been—I'm an attorney—attorneys advising clients about not disclosing too much, so that people will not be able to come back and say, oh, you lied on your statements. Even here in the United States early on there were problems with the telecommunications carriers. They've become far more forthright on the status of their remediation efforts and testing, and we're seeing that now, but SWIFT will also provide this information. Also the International Telecommunications Union is a mem-

ber of our Joint Council, and the representative who attended the meeting said that it was going to come out with a listing of how well its members are doing around the world in terms of their efforts on remediation and testing. So I think, yes, that that is the case and we all know. Electric utilities, again on our web pages, we would list telecommunications, electric utilities, because they are so important. That's the lifeline of the banking system.

Chairman BENNETT. Senator Moynihan.

Senator MOYNIHAN. Thank you, Mr. Chairman. Just a comment on your euro question. Tomorrow the Senate will take up the conference report on the Internal Revenue Service Reform bill and we'll be having about 4 hours of talks. The Finance Committee has been holding these hearings, and we came up with half dozen more things that we wanted to change in the IRS, and Mr. Rossoti, the new Commissioner, wrote us a seven-page letter saying, please, I'm happy to do any of those things, but I can't do them until after the Year 2000 is taken care of. I've got to do that first, and we sort of, we split the difference, but we did recognize the problem. I think the euro question is a real one, and I'm sure that Mr. Patrikis would not mind if we suggested that you go back and talk with your colleagues. I think there are some Europeans who would be happy to put it off.

I'm impressed by the amount of organization you have, but I—you know, time is running so fast. The Securities and Exchange Commission sent letters saying if you mess up on this, we'll just take your license away, is that basically what you did?

Mr. LINDSEY. That's basically correct.

Senator MOYNIHAN. You can tell them, "You're no longer a broker." How do you feel about the response you're getting?

Mr. LINDSEY. Well, I think the securities industry is working very hard on it. We've also just last week adopted a rule that we proposed earlier that requires reporting by broker dealers.

Senator MOYNIHAN. Requires reporting. Yes. I think the chairman has been interested in this. What do you require?

Mr. LINDSEY. It's a requirement for a management report that both outlines what the progress is in terms of Year 2000 remediation, where they stand in terms of budgeting, where they stand in terms of remediating—

Senator MOYNIHAN. Is that to forearm, in effect?

Mr. LINDSEY. There are two facets. It depends on which size you are. If you have \$100,000 in net capital, which is the way we look at firms, there's a two part form. For smaller firms, there's one form, where you go through and mark boxes that indicate where you are in different stages of progress, so this will be computerized.

As I already said, there are a large number of entities that are involved in this. The second form requires a management discussion in terms of where they stand in their remediation, what they're doing.

Senator MOYNIHAN. So you're trying to get the awareness and one of the ways to get their attention on this is say, you know, we're the ones who keep you in business, we can put you out.

I have to say, Mr. Chairman, that the Chairman Levitt has really been about the most proactive of our national officials in this

matter. He's been writing letters from 1996, was that the first time?

Mr. LINDSEY. The first letter went out in 1997.

Chairman BENNETT. 1997. Well, that's a lot, that's ahead of just about everybody else. You should be pretty proud of yourselves. I hope you are, I hope it works out.

Mr. LINDSEY. We're still trying to make sure we're ready.

Senator MOYNIHAN. Can I just ask one last question? When do you have the point of no return? That's not quite the right image. When is it too late? If you haven't done it by then it's too late, you'll never get it done.

Mr. LINDSEY. Well, I think it depends on the type of broker dealer or type of entity you are. So we care primarily about are what are known as the clearing broker dealers. There are a little over 300 clearing broker dealers. Those are the ones that stand to clear and settle every transaction.

Senator MOYNIHAN. The ones down here.

Mr. LINDSEY. Many of the larger firms that you would know of are clearing broker dealers. Most of them are well along the remediation phase. What we would get from a report that we would have both this year and in April of next year is a better sense, a more precise sense of where they stand. If we are looking at a clearing broker dealer that would not be ready going into fourth quarter of 1999, then we would start to make preparations for the relocation of accounts. But I would not expect any broker dealer to be there.

Senator MOYNIHAN. I've been looking at these very nice tables that you have been showing us, the 100 percent complete and then zero, and there are not many people who have got this all done yet.

Mr. LINDSEY. That's correct.

Senator MOYNIHAN. And you think by the last quarter of 1999.

Mr. LINDSEY. 1999. If you look at most of these entities, most of these entities are targeted to be completed towards the last quarter of 1998.

Senator MOYNIHAN. I said 1999. You said 1998.

Mr. LINDSEY. I said if they were not ready going into the last quarter of 1999, then we would start to look to relocate customer accounts.

Senator MOYNIHAN. So the last quarter of this year is when this has to be done or in your judgment those people that are not compliant shouldn't be—

Mr. LINDSEY. No, that's not what I'm saying.

Senator MOYNIHAN. Don't let me tell you what you're saying.

Mr. LINDSEY. What I'm saying is last quarter of 1998 is when those entities are targeted to be done. There will be testing going on through 1999. We fully expect, one of the basic reasons for the test is to find out where things go wrong and people will have to go back and do some additional remediation and testing.

Senator MOYNIHAN. But they'll have time and space to do it?

Mr. LINDSEY. That's correct. If we start to move into the last quarter of 1999 and if there are firms that are not ready, we will have been making plans to start to move those accounts outside.

Senator MOYNIHAN. One last question, if I can. Just help me. To move those accounts, tell a layman what you mean by that?

Mr. LINDSEY. We find a broker dealer that is Year 2000 ready, that has the ability to handle the accounts, and we have the customer funds transferred to those firms.

Senator MOYNIHAN. Thank you. Very impressive.

Chairman BENNETT. Thank you. I agree with Senator Moynihan's comment about Chairman Levitt, but I'm afraid I am going to prod you a little in another area.

I introduced legislation that would require any publicly held firm to disclose where it was with respect to Y2K, are you familiar with that? You made reference to it in your testimony. Chairman Levitt came to me early this year and asked me not to push my legislation, he said, frankly, it would take too long and he makes a very valid point. By the time legislation goes through the Congress and the appropriate commenting periods and so on, we would run out of time. He said we can take care of the regulation. You've referred to the efforts the SEC has made.

We held a hearing in the subcommittee of the Banking Committee and found that the response to those efforts has been abysmal. We were then told that the SEC, as you referred to again in your testimony, was going to give an interpretive release that would raise the temperature a little and cause some more responsible reaction on the part of publicly owned companies. My question is where are we on that timetable? That was 5 weeks ago that we held those hearings and those promises were made. You've repeated the promises here today. Can you get a little more specific rather than assume?

Mr. LINDSEY. My understanding—well, I can never commit to a particular date from the commission, but my understanding was that Commissioner Unger testified that we could do it in approximately 2 months. I believe that that timeframe is still accurate.

Chairman BENNETT. What about Chairman Levitt's letter to the CEO's? That doesn't take 2 months to put together.

Mr. LINDSEY. No, I think they're drafting that letter today.

Chairman BENNETT. OK. What about multinational companies whose stocks are held by American pensioners? I focused on that legislation, too. People who put their money into a teachers pension union, think it's all going to be in AT&T and DuPont or General Motors, don't think in terms of the international impact on these multinational companies that still have the stereotype of a blue chip stock to retire in America. What kind of reporting will be required? We've talked about that, I'm giving you an opportunity to just further—

Mr. LINDSEY. I think there are probably three possibilities that we're talking about here. One is the U.S. company that does multinational business, and of course they would have the same reporting requirement as any other U.S. company, regarding their Y2K issues.

Chairman BENNETT. I'm thinking more in terms of holding foreign stocks, traded in foreign exchanges.

Mr. LINDSEY. The second category, which again is not what you're talking about, is the fact that there can be foreign companies that are trading in the United States. If those are registered companies, they would again have the same types of reporting require-

ments that U.S. companies do, so those requirements apply to anything that's registered, regardless of where it's domiciled.

The third has to do with investments in foreign companies by either pension plans, mutual funds, et cetera. The mutual fund advisers of course have responsibility for being aware of investments and making disclosures associated with that in the prospectuses that the mutual funds put out.

Chairman BENNETT. Let me come back to one last question, then we will move on and thank the panel.

I focused on Japan. Let me ask another country-specific question, Mr. Patrikis. Russia has serious problems. One of the senior nuclear scientists in the former Soviet Union said we will solve the Year 2000 problem by waiting until 2000 and then when the hits come, we will know where the remediation will be required. Is there any other country on your scope that has that kind of a view where there's a substantial American investment? I hope we can talk the Russians out of that particular notion, but is there any country that particularly concerns you, instead of playing guess what the teacher wants, and have me prompt you in one country or another, I give you carte blanche. Is there a country where there are American investments where you have a primary concern?

Mr. PATRIKIS. Well, I was troubled by that quote when I read it, too, in the papers. All I would say is just imagine being a commercial banker or investment banker in Southeast Asia going through the financial crisis today. Regarding Year 2000, you have top priority in view of the depreciation of the currency, do you have enough money to do what you need to do, to first even see what you need to do? I think the organizations, the IMF and the World Bank have a great role to play here. The Bank for International Settlements is also playing that role.

The World Bank is developing a tool kit that can be used by organizations, both the supervisors and the official side, so firms will be able to come along. I would say in that part of the world they probably need all the help they can get and the financial assistance they can get from the international organizations to move it along. I mean, they're just worried day-to-day, how can we keep it together, keep our markets moving efficiently, so if there would be more help from that front coming from those organizations. And they are actively involved. I was impressed with the program the World Bank is developing. I think we'll find that very helpful.

Chairman BENNETT. Thank you very much.

Senator MOYNIHAN. Could I say something? I was impressed to learn that the British have given 10 million pounds to the World Bank. We haven't done anything like that.

Mr. PATRIKIS. Correct.

Senator MOYNIHAN. We have not.

Mr. PATRIKIS. No.

Chairman BENNETT. Well, thank you very much. We appreciate your presentation.

Chairman BENNETT. The next panel, William A. Bautz, senior vice president and the chief technology officer of the New York Stock Exchange and Peter Miller, chief information officer at J.P. Morgan. Gentlemen, we're grateful to have you here. Mr. Bautz, we'll start with you.

**STATEMENT OF WILLIAM A. BAUTZ, SENIOR VICE PRESIDENT
AND CHIEF TECHNOLOGY OFFICER, NEW YORK STOCK EX-
CHANGE**

Mr. BAUTZ. Thank you, Senator. Senator Bennett, Senator Moynihan, and members of the committee, I'm honored to be here with you to discuss the impact of the Year 2000 problems. We view the dimensions of this problem as huge with potentially disastrous global consequences to both business and government if it's not fixed. As the world's foremost securities market the NYSE is taking a leading role in promoting awareness of the Year 2000 computer problems among our 3,700 listed companies, which includes 350 non-U.S. companies, the securities industry, and the other capital markets throughout the world. We've worked hard to assure that our own systems will be Y2K compliant far in advance of the turn of the century. However, as important as our market is, and it is only one interconnected component of a global market, you pointed that out, Senator, much remains to be done to insure that all of the international capital markets are prepared to move smoothly into the next millennium. Our goal is to insure the first business day of the Year 2000, Monday, January 3, will be just another trading day around the world.

The NYSE would like to commend you, Mr. Chairman, for your leadership in calling this meeting and I would concur with the recent statements of Dr. Andy Grove that congressional oversight hearings helped play a critical role in the raising of the profile of this problem and give heightened urgency to remediation efforts.

The potential impact of the problem on domestic and international markets are profound. With the world economy so dependent on computer technology, you cannot overestimate of the impact of the systems ceasing to operate on January 1, 2000. The Securities Industry Association refers to solving the Year 2000 problem as the biggest business technology effort the world has ever experienced. Because of the interdependency of the world international markets, there is no concept of merely an isolated problem if a major market, financial setup or market participant is not prepared for the new century. Just as we cannot overestimate the ramifications of the Y2K problem, we can also not overestimate the costs of remediating the problem.

Estimates have ranged from \$500 to over \$1,000 per affected computer program. Such a conversion process would cost a medium sized company over \$4 million. Some estimates place the cost of the Y2K compliance in the United States at over \$200 billion and worldwide as high as \$600 billion. Such estimates are constantly being revised upwards.

At NYSE we're addressing the Year 2000 issues on multiple levels, beginning with the direct impact on the NYSE itself, and extending to international capital markets, then coordinating efforts with our member firms, over whom we have oversight responsibility and our listed companies, which include a dominant share of the world's major corporations.

After discussing our activities on each level, I will conclude by offering our perspective on the role of government in the Y2K issue.

One: Over the last decade, the NYSE invested more than \$1.5 billion in new technology to provide for greater capacity and to in-

stall next generation hardware and software. As we implemented this new technology, we made many of the necessary Y2K changes. Most of the technology conversion is complete, tested and in operation. As to our other background systems, our non-trading related systems, we have a comprehensive plan to fix, repair or retire non-compliant systems. We're currently on schedule to have the NYSE mission critical systems in production by December 31, 1998.

We estimate that our costs to achieve Year 2000 compliance will be approximately \$20 million, and I might add that our systems are not necessarily very date dependent, so our problem is a lot easier than a lot of other people's, and we're still spending over \$20 million to fix it. In large part our \$1.5 billion investment in new technology over the last decade provided us with the ability to address this problem at an early date and reduce our costs.

Installing Y2K compliant systems is only one step in the process. Proper testing is equally important. We constantly test our new systems and we test the hardware and software that our vendors provide to us. Our testing program includes connectivity tests with our member firms. For example, Merrill Lynch or Bear Stearns, end to end tests with our industry partners, NSCC and the Depository Trust Co. and participation in industry-wide data testing sponsored by the Securities Industry Association, which starts next Monday. Beginning in March 1999, industry-wide testing will occur on weekends with all of our member firms, all the U.S. markets, and all the securities industry utilities.

With regard to Y2K compliance among the world's capital markets, we're addressing this issue on a variety of fronts. In October 1997 we issued a memo detailing the Y2K issues to a subcommittee of the International Federation of Stock Exchanges and also submitted a copy of a proposed survey to help the Association collect relevant information from its members.

Acting in close collaboration with both the SEC and SIA, we raised Y2K issues with the International Organization of Security Commissions, IOSCO, where NYSE Group Executive Vice President Ed Kwalwasser serves as chair of the Year 2000 Subcommittee. Following presentations in Taipei in November 1997, a member survey was distributed to representatives in Europe, Asia, South America, and Canada.

More than 300 of the nation's broker dealers are NYSE member firms for whom we have primary oversight authority. These broker dealers carry and clear transactions for approximately 91 percent of all customer accounts obtained by U.S. broker dealers. We have woven Year 2000 compliance into our surveillance and financial and operational examination programs. In May 1997, we advised our member firms that they should designate a senior official to have primary responsibility to oversee the firm's Year 2000 project, that they should complete remediation efforts by December 1998, in order to be prepared for industry-wide testing scheduled in 1999.

Senator MOYNIHAN. Did you say December 1998?

Mr. BAUTZ. Yes, 1998, and be prepared for testing in 1999. Last December we conducted two Year 2000 surveys with our member firms, vendors, correspondent brokers, and other firms within the NYSE. With few exceptions, we were generally pleased with the results of the survey. We now conduct quarterly discussions with our

members firms to monitor their progress. Once a firm is Year 2000 compliant, the NYSE will request a written confirmation of that compliance from the firm's chief executive officer.

With regard to our listed companies, last year we brought together the CEO's of a number of our listed Companies to meet with the SEC to discuss the issue of correcting the Year 2000 problem and related disclosure obligations. We worked closely with the SEC Division of Corporation Finance to make sure our listed companies receive and understand guidance.

We are preparing disclosure material on the Year 2000 problem to focus on steps to address that problem. Analysts, shareholders, customers, and competitors will review these disclosures, and the marketplace will help to determine whether a company is adequately addressing this crucial area. Failure to take the necessary steps will not only result in a potential catastrophic consequences when the calendar turns at the end of December 1999, but it will also adversely affect the company's stock price and its customer base if the market judges that the company is not devoting the necessary time and resources to this project.

As hard as we worked on this issue, we recognize the private sector alone cannot address it. The SEC played a critical role both with respect to disclosure by public companies and through its oversight of securities industry participants. Additionally, we applaud the leadership of the Senate in creating a special Subcommittee to specifically address the Y2K challenge, as well as other Senate and House Members who have brought attention to this important issue. We also commend the President for creating the Year 2000 Task Force to oversee the Federal Government's Year 2000 conversion progress. The creation of this task force and the requirement that glossary cabinet members respond to the President's inquiries will help insure that the Federal Government will be able to cross the bridge into the next century.

Thank you again for the opportunity to present this testimony. I'll be happy to answer any questions. Thank you.

[The prepared statement of Mr. Bautz can be found in the appendix.]

Chairman BENNETT. Thank you. Mr. Miller.

**STATEMENT OF PETER A. MILLER, CHIEF INFORMATION
OFFICER, J.P. MORGAN**

Mr. MILLER. Good morning, Mr. Chairman, members of the committee. Thank you for the opportunity to address this important issue. My name is Peter Miller, I'm the chief information officer of J.P. Morgan and have been involved with the Year 2000 problem since 1995. My remarks today will focus on the nature of the Year 2000 problem, a risk management approach to solving it, and the need for industry to industry collaboration, as well as international cooperation.

Let me begin by saying that the Year 2000 problem, or the millennium bug as it is sometimes referred to, is an issue that we at J.P. Morgan consider of paramount importance to our firm, the financial service industry, and the United States and world economies. No other event in history will so thoroughly expose the vul-

nerability of our living and working in a world so interconnected by computers and telecommunications.

The problem as we see it is not really a technological one, although technology lies at the root of both the problem and solution. Correcting the two digit dating systems, which in their present form cannot tell one century from the next, is easy. Rewriting code as a technological matter is relatively straightforward. The real problem and the real danger can be summed up in two words; logistics and dependency.

The logistical problem is that millions of computers are involved, a huge undertaking in and of itself. Making the task even more daunting are the intricate, complex, and pervasive interdependencies among the computers and computer networks that populate the world today. It is not enough that every computer, software application, and embedded chip affected by the Year 2000 problem be fixed. They must be fixed in a way so they remain compatible with all the other devices with which they interoperate. The financial industry offers a perfect illustration of the enormous size, scope, and complexity of the problem.

Finance today is a global business, where almost unimaginable sums of money are in a constant state of electronic flux, and interdependency is particularly acute, given the networked nature of market participants. We have already seen harbingers of what might be in store. The New York Mercantile Exchange and Brussels Stock Exchange have both experienced date-related operating failures. Although these problems were relatively small in scope, the scale of the issue becomes magnified when you consider all the world's financial institutions will find themselves tested on the same day. At the extreme, the price of failure could be systemic breakdown.

Yet it is not enough for the world's banks, stock exchanges, and clearing houses to have their respective houses in order. It won't do them any good if their transaction processing systems are ready, but they cannot relay information to clients, creditors, regulators, and payment and settlement systems because of breakdowns in telecommunications networks. And imagine if all the banks and telecommunications companies are set to perform on January 3, 2000 but their employees can't get to their desks because the elevators don't work. Simply put, our networked world is only as good as its weakest connection.

Typically, the barriers to Year 2000 compliance come down to four things: Time. This is a problem with an immovable deadline. Money. For some, compliance may not be economically possible. Skills. Even if you do have the money, you still need to find people who can fix the problem. And competing priorities. If focus is on other issues, the likelihood increases that the Year 2000 problem simply won't get fixed.

So how does one combat such an enormous and insidious problem? At J.P. Morgan we have applied a comprehensive risk management approach, and in our measured opinion things will go wrong. Statistical probability tells us that the logistics and dependencies involved almost certainly dictate some level of failure. So the question is not if things will go wrong, but how many things will go wrong. Therefore, we believe the best course of action and prob-

ably the only one, given time, cost, and skill constraints, is to identify the most critical situations, fix them first and then move down the chain of priorities.

Firms that will do the best will be ones that put their own house in order, coordinate their activities with their trading partners, and prepare contingency plans in the event that unexpected failures occur.

At J.P. Morgan we began discussing the Year 2000 problem at senior executive levels in 1995. Early the following year with the full commitment of Sandy Warner, our chairman and CEO, we launched a firmwide initiative. The commitment of senior management was crucial, for without it we would never have been able to muster all the resources necessary to attack the problem. With 600 people working on the initiative at its peak, we have estimated that the total cost of making the firm Year 2000 compliant is \$250 million.

Paula Larkin, a senior manager at Morgan, is charged with overseeing and coordinating all of the firm's Year 2000 efforts. To date, these efforts have included raising awareness throughout the firm, conducting a comprehensive analysis of the problem and its many impacts, putting in place a complete end to end methodology and certification process and applying the lessons learned broadly across the firm so as to reduce costs and risks while accelerating progress. By year's end we expect to have all of our critical applications and products tested and certified as Year 2000 compliant.

The importance of testing cannot be overstated. Our remediation efforts have shown the problem to be pervasive and not always obvious. For example, our testing of one product, which the manufacturer said was Year 2000 compliant, found that while the product could handle the changeover on January 1, it had not been programmed for the fact that 2000 is also a leap year. The lesson here is that nothing can be taken on face value.

With our internal testing and renovation well under way, much of our effort is currently focused on addressing external dependencies, both inside and outside the financial services industry. This has involved identifying and assessing Year 2000 exposures as posed by clients, counterparties, exchanges, depositories, clearing houses, and correspondent banks as well as by power, telecommunications, and other utilities.

Key to this effort has been the coordination and collaboration with others in the industry, namely competitors, exchanges, the Federal Reserve, and trade associations. For example, Morgan has been working with the Securities Industry Association, the New York Clearing House, and others for the past 2 years on this issue. Through various committees, the SIA has been promoting awareness, developing testing guidelines and coordinating industry-wide testing efforts. J.P. Morgan and 28 other securities firms are currently engaged in piloting the tests that will be used early next year.

The work of SIA and other organizations like it have helped place the U.S. financial services industry into a leadership position in terms of Year 2000 readiness. The U.S. financial services industry is ahead of its peers abroad and also appears to be head of all other industries. To the best of my knowledge, financial services is

the only industry conducting integrated testing to identify readiness and identify issues ahead of time.

But for financial services companies, the need for vigilance must extend beyond their own industry. The ripple effect from a large disruption in another industry, such as telecommunications, transportation, or power, can have severe consequences for the financial sector. As a result, J.P. Morgan, on its own and in conjunction with other industries, is trying to understand the risks faced by service providers and the programs they have in place to mitigate these risks.

To mitigate the risks, the free flow of timely and accurate information is essential. Traditional barriers must be broken down for sharing of best practices. The Government can play a key role here through influencing legislation to promote cooperation and information sharing across industries. This cooperation collaboration also needs to extend beyond the borders of the United States.

For Morgan, with operations in more than 30 countries, the need for global attention to the Year 2000 problem is clear. The ultimate goal is to demonstrate industry readiness through integrated testing with all major participants in all major market locations. Progress is being made but much more work remains to be done.

Dependencies with potential cross border implications are of particular concern in the international arena. Disruption in a key market could prevent the settlement of trades or movement of cash and securities, which in turn could affect credit and liquidity. Were a major international investment bank to find itself in a position where it could not receive or deliver cash or securities, the consequences could have a ripple effect on the world economy.

Our assessment of global readiness places the United States ahead of all other countries. Preparedness in Europe varies country by country. Thanks in a large part to the work of the British Bankers Association, the United Kingdom ranks in the top spot. Trade associations are active across the entire continent, but the entire Year 2000 effort had been hurt by the time, energy, and attention being devoted to the European Monetary Union.

Asia ranks behind Europe. Here the biggest threat is posed by the downturn in the regional economy. Strong progress, however, has been made in Japan over the last 6 months due in large measure to the efforts of the Japan Securities Dealers Association working with the Ministry of Finance.

Action has generally been lagging in Latin America. However, variations exist within the region. Mexico is proving to be a leader. Currently the SIA is making use of work done in the United States to provide best practices in other locations.

On a global front, a recent positive development has been the birth of the Global Year 2000 Coordinating Group. This group raises awareness, identifies resources, and coordinates initiatives on an international basis.

To close, I would like to reiterate a couple of key messages. The problem is serious. Things will go wrong. And the companies, industries, governments, countries, and regions that will be most successful in addressing the problem will be the ones that: Get a firm handle on internal issues that are particular to them; address the critical external dependencies that affect them; work collaboratively to address the problem; and share information and best practices.

ratively with others to share information and maximize resources; and put in place contingency plans that guard as much as possible against unforeseen events.

Addressing this problem will take hard work and for the most part, it's a thankless task. Success will be defined not by some great discovery but by minimal disruption. The financial services industry has made considerable progress to date and is well positioned. However, the test in all this lies in the strength of the weakest link, wherever it may be.

I thank the committee for the opportunity to share my thoughts and look forward to working with it and others to bring this issue to the most uneventful conclusion possible.

[The prepared statement of Mr. Miller can be found in the appendix.]

Chairman BENNETT. Thank you. I appreciate the comments of both of you. First, a housekeeping item. I remind all witnesses to please make sure the committee has electronic copies of their testimony and be aware they may be asked additional questions in writing by other members of the committee who couldn't be here at this hearing.

Now, you made a reference, Mr. Miller, to external dependencies, and one of your major external dependencies, of course, is the U.S. Government. That is what Mr. Koskinen's task force is working on, the committee heard from him, I have a weekly conversation with him, either face to face or by telephone every week to see if we're coordinating what we're doing with what the executive management is doing now.

Have you made any effort or are you aware if anyone has made an effort to put a critical path risk assessment model in place with respect to not only our Government, but with any other Government in the world? Have you looked at how that external dependency could hurt you in another country?

Mr. MILLER. Of that I'm not exactly sure. I understand the global coordinating group is going through a very thorough evaluation of contingency implications. Of that I think an important factor is to look at the likelihood of the impact of potential problems and to be able to avert those in the best way possible.

Chairman BENNETT. Did you have a comment on that, Mr. Bautz? You are a little more locally focused as the New York Stock Exchange, but—

Mr. BAUTZ. I guess our primary interface on the international level is to look to groups like the FIBV, IOSCO and our principal work there has been to raise awareness and make sure that we can provide whatever assistance we need to our sister exchanges. There's a steady stream of people coming to see what we've done, what the risk factors are, these things, so we've seen a reasonable number of people coming through to ask us what our experience has been.

Chairman BENNETT. I will ask you the same unfair question. Is there any stock exchange that makes you very nervous at the moment?

Mr. BAUTZ. Difficult to answer that question, because we don't deal with them on a day-to-day basis, but the good news is we made a presentation at the FIBB meeting in Brussels a few weeks

ago, the general sense there is that the awareness level has gone up there really dramatically from the last time we had this set of meetings. It's the principal focus of meetings that we were here, both the SIA and NYSE made presentations to the panel, so there was a lot, four other international exchanges spoke as well. So the awareness level is going up.

The issue that I think we have to focus on is whether or not there's going to be enough time to complete all the things that need to be done. Some people are coming fairly late to the party. The effect of having a smaller stock exchange somewhere with a problem is not that great; France, Germany, and England, obviously, the stakes are a little higher. I think the people are well aware of what's going on, they're working to fix that.

Chairman BENNETT. It is late. I tell people somewhat facetiously, I know how to start the Y2K problem, start in 1995. Senator Moynihan.

Senator MOYNIHAN. Sir, yes. Mr. Bautz, talking about the SIA statement that this is the biggest business technology effort that the world has ever experienced, and I can't avoid the sense that it's not 1995. Did I hear you say, Mr. Miller, that you want to be finished all your work by December of this year, so you can test it in the year that follows?

Mr. MILLER. We indeed want to be finished with all our critical applications by the end of this year, to be ready for testing.

Senator MOYNIHAN. Haven't we been hearing something like that from all of our witnesses, that you better be ready by the end, do what you have to do to have it done by the end of this year?

Chairman BENNETT. That's right, and if you don't, you better start making your contingency plans. One of the witnesses in one of our other hearings said if you're not ready by the end of this year, stop and put all your focus on contingency plans, because you're not going to get ready. That's a pretty Draconian kind of statement and I wouldn't presume to tell any CIO that's what he or she ought to do, but that's at least one comment.

Senator MOYNIHAN. I think we're getting a convergence here of judgments from people who hadn't heard that testimony. Would you agree, Mr. Bautz?

Mr. BAUTZ. I think that you would be foolish not to get it done by the end of this year. The amount of things that can go wrong, the interdependencies on the other parties, you absolutely should do as much testing as you possibly can. The key to all of this is testing. The amount of effort that the SIA has put into constructing and orchestrating this particular industry test is unprecedented, I think, in the SIA's history, and we are businesses that worry about how well do the moving parts work well together. A tremendous amount of industry effort is going into this.

Senator MOYNIHAN. Can we all agree that it's now July?

Mr. BAUTZ. Yes.

Senator MOYNIHAN. There's less than a half a year.

Mr. BAUTZ. I think I can agree with that, yes.

Senator MOYNIHAN. It's less than half a year's time.

Mr. BAUTZ. Yes. Well, we, as I said, next Monday, we will be starting with 15 firms to test end to end through the New York Stock Exchange, through the clearing corporation, through the set-

tlement agencies, for a whole range of products in this country, so the major organizations are in place to do this testing end to end.

Senator MOYNIHAN. Well done, but Argentina, Indonesia? Trident submarines? Good God.

Chairman BENNETT. Well, I would just comment. I spoke earlier about being at nuclear plants. The first nuclear plant that I went to, the chief information officer laid out her time line for her company, and she had 15 percent of the total time for actual remediation, and 70 percent for testing. And I've checked and found that's about right among people who are informed on this, so someone who thinks he's going to have this solved by having new software packages delivered to him in October 1999, and he'll put them in and test them for a 1 or 2 weeks, is courting disaster.

Senator MOYNIHAN. Thank you.

Chairman BENNETT. Thank you. Thank you both, appreciate it very much.

Chairman BENNETT. Now, panel No. 4, we have Tanya Styblo Beder, who is principal, Capital Market Advisers, Inc. and Dr. Howard Rubin, chair of the Department of Computer Sciences at Hunter College. We thank you both and you get to in the style of the New York Yankees, bat cleanup here.

Ms. Beder, we'll hear from you first.

STATEMENT OF TANYA STYBLO BEDER, PRINCIPAL, CAPITAL MARKET RISK ADVISORS, INC.

Ms. BEDER. Chairman Bennett, Senator Moynihan, and members of the Special Committee. I am pleased to appear today to discuss the progress of financial firms, both foreign and domestic, in managing the Y2K problem as part of the Special Committee's consideration of this topic. My name is Tanya Styblo Beder and at present I am a senior partner and one of the original founders of Capital Market Risk Advisers, a firm specializing in independent risk assessment, valuation and risk oversight implementation for all types of financial operational and strategic risks. CMRA's clients include banks, broker dealers, insurance companies, pension funds, mutual funds, hedge funds, thrifts and credit unions, custodians, corporations, rating agencies, and financial software firms in the United States, Europe, Asia, Australia, New Zealand, Mexico, and Canada.

CMRA's work is both reactive and proactive. For example, we assess and contain existing risk problems that cause firms to bleed money as well as evaluate and implement programs to manage both current and future exposures related to market risk, credit risk, operational risk, derivatives risk and model risks.

My testimony today is based on my experience with financial institutions around the world since the late 1970's. My opening remarks will summarize my more detailed statement, I ask that my detailed statement be entered into the record.

Chairman BENNETT. Without objection.

Ms. BEDER. Y2K is the most crucial issue facing every financial institution in the United States and is one of the top two or three issues facing institutions in other countries around the world. With only 18 months to the turn of the century, I feel that financial institutions and the global systems that process their transactions around the world are far from compliant. Nonetheless, I do not join

those who predict a huge global recession or prolonged mayhem in financial markets.

This is not a small statement for me to make, for as recently as a year ago I was very much afraid that Y2K would bring dire consequences to the financial sector. My fledgling optimism for the financial firms in the United States is based on my observations of increasing momentum to implement contingency plans that lower risk during the critical period.

Y2K is big, pervasive, and global. Spending to solve the technological aspects is expected to run as high as \$600 billion and the cost of business continuity issues, interruptions due to Y2K, is estimated as high as a trillion. The total spending necessary to deal with Y2K will exceed the amount the United States spent, adjusting for inflation, fighting the Viet Nam conflict, \$500 billion, but with luck will not reach the amount spent during World War II, \$4.2 trillion.

Analyzing Y2K is like peeling an endless onion. Each layer of issues leads to another layer, often involving greater degrees of interdependence between players in all three facets of the economy: Financial firms, nonfinancial firms, and public sector.

While a great deal remains to be done, my recent review of dozens of key market players including banks, broker dealers, pension funds, mutual funds, custodians, and corporations in major capital markets around the world indicates an increase in the amount of resources devoted to Y2K technology issues as well as to business continuity issues.

Battle plans of individual institutions have evolved along the three primary dimensions: Y2K exposures under the firm's control, Y2K exposures to others, and contingency plans for Y2K exposures outside the firm's control.

In general, large and medium sized financial firms in the United States and Australia have analyzed and are on track to address Y2K problems under their control. Examples of such exposures include internal systems, such as PC's and mainframes, embedded system devices such as elevators and security systems, businesses processes such as settlement and clear activities or the issuance of pension or annuity checks and computer code.

Large financial firms both in the United States and Australia also are reviewing in detail their exposures to counterparties in financial transactions, including loan and investment portfolios, and to their supply chain. Firms typically conduct the review of outside vendors by a survey or questionnaire. Typically only 25 percent of the surveys are returned with response information and fewer than 10 percent of those returned are accurate.

This disappointing news from vendors has moved financial firms to consider implementing financial transactions designed to reduce exposures and particularly cash flows from the December 1999 through March 2000 period. Examples are contingency plans that envision completing year end portfolio trades by December 15, 1999, amending loans or entering derivatives with customers and counterparties to move cash flows out of the December to March period, and contingency planning for malfunctions in the wire transfer, settlement, credit card, ATM and other critical systems.

Although preparations are well underway in the United States and Australia, the story is quite different in other countries. Regulators around the world continue to encourage and demand Y2K efforts by financial firms, but there is wide agreement that financial firms in Asia are far more concerned with whether they survive until 2000, an issue we have named IF-2K, rather than Y2K systems issues.

Moody's recently reported that 49 major Japanese banks planned to spend \$249 million as a group on Y2K compliance. This amount is only a fraction of Citicorp's planned \$600 million program and only equal to Chase's and J.P. Morgan's planned \$250 million.

Financial firms in Europe are so absorbed by the system challenges posed by European monetary union that non-EMU projects, including Y2K conversion, are commonly suspended or postponed. A parallel situation exists in the United States with some firms so absorbed by the system challenges of Y2K that they have placed moratoriums on non-Y2K projects, such as dealing with a single currency in Europe. This will have ramifications for our financial system in the future.

The Brazilian financial sector is slow. As in Asia, South America is more concerned with economic health than Y2K. Russia and Eastern Europe is a financial black hole, especially given the significant variation in regulatory oversight.

There is, however, some good news to report. In the United States financial firms continue to reduce their exposure to the financial firms in Asia and Europe either through selling the assets they hold or via some combination of financial transaction amendments and derivatives. In Europe, the happy news is that EMU conversion poses system challenges similar to Y2K, hopefully shortening the time that will be required to attain Y2K compliance.

My statement closes with eight areas that keep Y2K chiefs up at night, and merit focus by the Special Committee on the Year 2000 Technology Problem. I will now summarize five of them.

The first is telecommunications and energy. Most large financial firms conduct 80 percent of their transactions electronically and 25 percent or more of their transactions in the interbank market. To summarize the remarks by many Y2K chiefs in this area, "we don't have a clue." This leads me to conclude that reliability on telecommunications is a Y2K wild card.

The second is exposure to the middle market. Companies in the Fortune 500 plan to spend an estimated \$11 billion on Y2K fixes, which includes \$3.5 billion by the largest financial firms and are focused seriously on business continuity. The Gartner Group study of 6,000 companies in 47 countries indicated that 30 percent of all companies and governments have not started on Year 2000 compliance efforts, but that 88 percent of the laggards were companies with fewer than 2,000 employees. Small companies are more likely to be able to operate manually and to be able to manage their full supply chain in a crisis. But middle market companies are likely too complex to operate manually and probably have not devoted sufficient resources to Y2K and so are another wild card. Some analysts predict that up to 20 percent of middle market companies will have a problem with Y2K leading to significant increases in bankruptcies of currently healthy firms.

The third is information sharing. Even though a great many Y2K problems have been solved, information sharing among parties who stand to benefit from others' knowledge is hampered by the fear of litigation. During my review, several Y2K chiefs commented, "We are happy to discuss Y2K, however, under legal advice, there will be issues that we will not be able to discuss, at least not on the record." Future litigation costs around Y2K are estimated to range between \$1 trillion and \$4 trillion, an amount over and above the \$1.6 trillion estimate I mentioned earlier for technology fixes and direct business losses. Perhaps a wartime profiteering limitation should be considered for litigation costs, or maximum allowable damage levels in order to promote the sharing of information.

Fourth, and an additional concern for many Y2K chiefs, is the potential for fraud. Some firms have corrected hundreds of millions of lines of code using automated software sniffers versus manual intervention. Those who have relied on manual code correction are more susceptible to fraudulent transfers or other sabotage that may cause harm at future dates. Given the pressure of completing Y2K fixes, few firms have the luxury of checking each manual change to their source code or other software.

Fifth is liquidity. Thirty-eight percent of IT professionals say they may withdraw personal assets from banks and investment companies just prior to the millennium to protect their personal finances from Year 2000 failures. If financial institutions implement contingency plans that prevent use of electronic systems and consumers thus have to withdraw extra cash to avoid the risk of credit card and ATM failures, for example, to cover their holiday spending in December 1999, how much additional liquidity will the banking system need?

Thank you, and I welcome any questions that you have.

[The prepared statement of Ms. Beder can be found in the appendix.]

Chairman BENNETT. Thank you. Before we go to Dr. Rubin, I raised the same issue with Chairman Greenspan and he told me, if my memory serves, and it usually doesn't, but that the Fed was planning to have an extra \$80 billion in cash available during that holiday week period for just the particulars that you have commented on. Whether that will be enough, I don't know, but the Fed is also thinking about liquidity and planning to have additional cash available for those that get nervous about it. Dr. Rubin.

**STATEMENT OF HOWARD RUBIN, CHIEF EXECUTIVE OFFICER,
RUBIN SYSTEMS, INC. AND CHAIR, DEPARTMENT OF COM-
PUTER SCIENCE, HUNTER COLLEGE**

Mr. RUBIN. I thank you for the opportunity to testify before the committee. My first suggestion is you get every company CEO lights like that. Put it on their desk.

Chairman BENNETT. It makes the witnesses nervous, but doesn't do anything for Senators.

Mr. RUBIN. Second, even using my finest New York talking techniques, I probably can't get through the whole statement, so I'd like to give you an abstract of some of my comments.

Chairman BENNETT. Your full statement will be included without objection.

Mr. RUBIN. First of all, this is an issue that I focused on for many years. I've established a Global Research Network now with about 16,000 individuals and 5,000 or so companies in about 50 countries from which I collect data and in general I look at interpreting global trends and I also work as a consultant to some of the largest companies in the United States. And with regard to the testimony today, I will confine my comments to specific areas of interest to you, which are the progress of foreign financial companies and also the state of U.S. financial markets themselves and other risks that are out there.

My fundamental position on this matter is really quite simple. No. 1, with all the research I've done, it's quite clear that no one can accurately predict what will happen, and as Peter Miller says, this is really an issue of risk management.

No. 2, no institution stands alone, so looking at individual institutional progress really doesn't mean very much, and progress indicators by themselves are among the wrong things to be looking at. Because institutions can't stand alone, there's no institution immune to disruption of business transactions as they flow around the world and influences of this disruption are more than the financial sectors themselves. We have to deal with utilities, our water, basic infrastructure and transportation.

Something else the committee I believe should think about in the general overview is the Year 2000 problem has both direct and indirect economic consequences. The direct consequences is disruptions and problems that we're talking about here. The indirect consequences have to do with the economic diversion of resources and funds to deal with this problem, and quite simply, I don't want to imply there's a linkage between technology investment and business performance, but in the mid-1990's for every dollar a company spent on information technology in the United States, they supported about \$150 dollars in gross revenue. Y2K technology is taking 25 cents out of that dollar. That's 25 cents not going into revenue, support, growth, and profit and that's what I mean by a second order effect and that's absolutely critical to look at in my view. With euro on top of that, hitting a subset of companies that have to deal with that, so it's taking away from the ability of companies to grow and move forward, so there are first and second order effects.

Therefore, I believe whether or not an organization believes it is Year 2000 safe or Year 2000 compliant, it's imperative that assessment of Year 2000 risks be made and act to abate any that are identified.

There are really three categories of risks that are out there. One category of risk is what I call the known knowns. Those are the things we know that we know or at least think that we know based on surveys. Then there are the known unknowns, the things we know we don't know, but we'd like to find out about and a lot of testimony was around that.

The most interesting category is what we call the unknown unknowns. Those are the things that we don't know we don't know about right now that everybody has to be prepared to deal with. So as a backdrop of discussing my picture of foreign financial com-

panies, let me give you a snapshot of known knowns. A lot of this is in the table that's on page 2 of my testimony.

Based on global estimates we've had, I've tried to take a look at what countries may not be able to bear the burden of Year 2000, how much GDP impact would it have in terms of diversion of GDP resources. The heavy hitters are Russia, Mexico, Brazil, Portugal, Korea. Countries that have the least impact of looking at Year 2000 spending as a percent of GDP, countries like China and India.

If we look at what countries have work in progress, countries like the United States, UK, and Canada, some of the ones you point out, have the most work in the pipeline. If we look at China, Mexico, and Brazil there's the least work in the pipeline. And in terms of what I call a schedule indicator, a schedule indicator doesn't mean I have 27 percent of my work done. Suppose a company tells me 80 percent of their work is complete now, but at this point according to their plans it should have been 95 percent, they're not doing very well. So I look at ratio of what's done versus what they plan to have done, assuming they had plans, the countries from where I have data that seem to be in the worst shape with regard to this are Mexico, Spain, and China could be on that list again. That's a little bit of the result of what I think are known knowns.

There are lots of surveys around about what's going on, my friends at Capers Jones in the UK did a survey, built the millennium index. In the European market, some of the greatest risks are Germany, Italy, Belgium, Finland, and the UK and they've identified those same group of countries rather as being generally late, not only are they slipping in terms of the amount they spend, they're slipping in terms of when they've started. By the way, in terms of the U.S. industry picture and trying to take a look at who is in really good shape, it looks like the software industry, financial services, manufacturing, and telecom are moving, although there are a lot of unknowns, as we discussed before in the hearing with regard to telecoms.

We have monitored schedule slippage in the areas such as transportation, utility companies and that's why I have great concerns about beyond the financial sector, looking at impacts on them from other areas. In terms of what's happening with this problem, as we get closer to the deadline, things keep moving around. Some the big data I have from the latest survey that I just closed June 30 on page 4 is companies are continuing to underestimate the Year 2000 problems, numbers are going up. However, the number of companies that have activated have gone up, 86 percent of the companies are now doing something about Year 2000. The number focused on contingency plans has jumped from 3 percent to 72 percent. But when you ask them what's in those contingency plans, you can't find out very much.

There's a lot of activity. I don't know about content here. Fourty percent of those surveyed had some kind of date related incident that they've reported.

So United States and some of the global picture, let me move on to the progress of foreign financial companies, this is sort of the known knowns and bordering on the known unknowns. It looks like that project starts outside the United States are late, spending estimates and rates are lower than experienced. In eBANKER sur-

veys, more than half the companies had nothing to report. So there are a lot of known unknowns out there and unknown unknowns out there.

What I think really has to be done is that this committee has to adopt a composite Year 2000 tracking and risk management viewpoint. You have to move to encourage mechanisms to share information, mechanisms to force companies to focus on scenario analysis. The question for companies today is what alternatives have they focused on for different scenarios. In New York City you know if there's a blizzard you have ways of your folks getting to work. What are the set of questions a company must be able to answer, running from a failure within their company to a failure within a counterparty, to a multipoint, multinational failure of infrastructure, utilities, and everything else.

So the scenarios are critical. So I think my final observation is along those lines is somewhat contrary to the pure focus of this hearing. This is not a stand alone company or industry issue, it's a network issue. The most difficult and critical of the Year 2000 risks are the unknown unknowns or cross industry failures and we will not know what all these are ahead of time and I think it's critical that we move companies to a point where they have all these scenarios, and the key question to ask them has to do with one of preparedness; having looked at scenarios, be prepared to act on them and to have some degree of surety on the problem where we can. Thank you.

[The prepared statement of Mr. Rubin can be found in the appendix.]

Chairman BENNETT. Thank you very much. Using the phrase the Senior Senator from New York would recognize from the previous circumstance, the best time to escape is immediately after you're captured, and I'm told that my memory has failed me, the \$80 billion figure came from somebody other than Chairman Greenspan. My memory tells me he used it, the Fed has called to complain about my using it and putting it in his mouth, so I will quickly take it out of his mouth and out of mine, too, to try to find out.

Senator MOYNIHAN. I've been planning to put \$80 billion aside.

Chairman BENNETT. Let's leave that to when we get to it.

I'm interested, Ms. Beder, in your reference to fraud. Because that's something frankly we have not focused on, at least in the various jurisdictions that I've had. I'm told that a Mafia run firm started a contract to fix the company's Y2K problem, and instead of fix, they used their opportunity to move lots of money from one account into the other in the name of fixing the problem. Fortunately, they got caught, but I think that is an issue that needs to be highlighted here, and I thank you for raising it with us. It corresponds with hearings we've had with respect to the challenge of the Defense Department and one of the Defense Department problems has to do not only with the Y2K remediation difficulties, but with the exposure that comes from sabotage in the defense establishment by virtue of computer attacks and computer sabotage, since the entire Defense Department is dependent on computers.

And Dr. Rubin, the Defense Department has exactly the same concerns you do with respect to the interdependency. They pointed out that when someone picks up a telephone to make a call to the

commander from the Pentagon, they're dependent on Atlantic Bell for that call to go through. In the old days when the Defense Department was hard wired from every establishment, from one to the other, are gone, and now they depend upon service from the same suppliers that security firms and others would be dependent upon. So your point about the interdependability of this situation is a good one and I'm glad that you raised it.

Senator Moynihan.

Senator MOYNIHAN. I wonder if I would be wrong in thinking that our two closing witnesses are the most bearish today, possibly because you don't have any institutional affiliations.

Chairman BENNETT. I heard Ms. Beder make a very bullish statement about her previous position.

Senator MOYNIHAN. Neither of you think that we're doing very well.

Ms. BEDER. I guess the more important point to me is that I think we've acknowledged the reality that you actually can't find all the places where Y2K might impact you, and with respect to things like testing, as people have started that process and right away many of the firms reveal, large financial firms don't expect their process to be fully complete until the second or third quarter of next year and that's primarily because they're running into problems like rolling huge databases of assets and transactions forward, and I can't underscore the importance of doing that properly.

For example, some of the testing that Japan has planned places no requirements on the financial institutions as to how they are conduct their testing for the virtual trades that are planned to happen on December 20 of this year. So I suppose that my bearishness on the one hand is over the realization that it's probably a problem that no one could foresee all of the dimensions of it. I think my optimism comes from the fact that people have very heavily focused on contingency plans to reduce their exposure for limited trading volumes for that period, to moving cash flows, and doing things that will help them to let other people be the guinea pigs.

Mr. RUBIN. I would like to say although I have no affiliations as an employee, I've worked with some of the largest companies on this issue. I see the largest companies in the United States are heavily mobilized, they have very comprehensive program offices and they're look at multiple dimensions of the problem. However, in terms of position, and I gave the impression here, every company is probably behind what they would like to be, but the real issue is that we are where we are, there are some things we may be able to do, companies are talking about tax credits, things for people moving forward, penalty things, people not being able to become brokers, we're looking at ways to accelerate progress.

But the real issue is no matter what level of progress there is, removing someone's license to do something, doesn't move things along, the Year 2000 crisis, it doesn't help the global economic situation. So we are where we are, there's a need to do risk management and contingency planning.

And the final statement in my statement say this problem and the results of this matter are a matter of choice. We have a choice to be able to focus on the risks and move to abate them based on reality in the current position or clear communication, or we have

a choice to ignore them. The largest companies are taking the choice to move forward and we need the global encouragement to move this forward on a larger scale.

Chairman BENNETT. The global encouragement. So you're not at all excited about any foreign markets?

Mr. RUBIN. What's necessary now, it's hard to use definitive words here, but you started to hear some of the testimony about the Joint Council of regulators, pressure is being put, visibility is given to the issue, whether or not these folks have a level of visibility, it has to feed into the scenario analysis. You have to decide country by country, market by market, what if they're not there, what if they can't process, what do you do in that case.

This is a storm, you have a forecast, we don't know where the cells are that are going to hit with dramatic activity, we can get on the highway and pull out, take your choices, and those are what everybody is faced with, and those are the things that have to happen in the global economy of our financial markets. If the worst will happen, what will you do, if the best will happen what will you do, because no one really knows what's going to happen.

Senator MOYNIHAN. Could I ask, Mr. Chairman, since you mentioned this, would it be imposing to ask Dr. Rubin, could he give us something in writing about scenario analysis?

Mr. RUBIN. I'd be pleased to do that.

Senator MOYNIHAN. It's something you obviously worked at.

Mr. RUBIN. Also, I know that the Global 2000 Committee has published a document on that, so you might be able to request that from the appropriate resources. I'll be glad to do so.

Senator MOYNIHAN. Your colleague there mentioned the Gartner Group.

Ms. BEDER. Yes.

Senator MOYNIHAN. Do they have a study. Could you provide the committee with a copy of the Gartner Group report?

Ms. BEDER. Certainly.

Mr. RUBIN. One of my affiliations is with Gartner Group, so we'll supply a copy, too. A meta group.

Chairman BENNETT. We're in contact with the Gartner Group. It's located in Connecticut, so that explains it.

Senator MOYNIHAN. Thank you very much, Mr. Chairman, and thank you for a wonderful, excellent panel.

Chairman BENNETT. Let me just, Dr. Rubin, if I could hold you for just a minute or two more.

Mr. RUBIN. My lights are off.

Chairman BENNETT. As I say, the lights intimidate the witnesses, but they mean nothing to senators.

I'd like your reaction and if you have none here, your reflections, consequently, so you might send us something, on an issue that I'm only recently becoming aware of, that is, how long is this going to last after the Year 2000? I focus on the fact that litigation will go on for decades after the Year 2000, as people sort out the various lawsuits and who's responsible. In the style of Dickens' Bleak House, there are lawyers who are planning to spend their entire careers litigating Year 2000 problems and maybe their children and grandchildren as well.

But the more I look into it, the more I realize that many of the remediation efforts that are going forward are in fact not long-term fixes, they are short-term bridges to get us past January 1, 2000, so that the firm can continue to operate, but we'll still require skills and money and effort under that bridge to see that the debris is cleaned away and things are made so that they work properly.

Mr. RUBIN. There are a few ways this problem could be looked at. In general, Peter Miller used the word very nicely about the critical systems of particular companies. He was taking a look at what companies are getting done. Companies with good plans are probably on the order of getting 65 to 80 percent of their total systems converted, assuming there's a subset of their critical systems. That means there may be a residual equal of 50 percent of their problem to be treated after the Year 2000.

Other points in the history of computing, systems people are optimistic. One of the reasons they assumed we wouldn't have this problem is because people would buy new systems, so the latent demand after this problem, critical systems have to be addressed, the ones that are needed in a hurry, critical bridge will have to be addressed, but then the latent demand of companies for new systems which was forestalled by this crisis will show up, so it's hard to tell what the ripple effect of this will be, so people are talking 3 to 5 years, but it will get diluted by new opportunities and everything else.

Clearly there will be some crossover. You have to understand in 2005 we will spend on technology in 1 year twice what the world spend in the 1980's. One year will be worth an entire decade twice over again, and that will converge with Year 2000 remediation, cleanup, and we'll start moving off again.

Chairman BENNETT. I somewhat optimistically told Senator Lott when this committee was created that we would of course be willing to go out of existence shortly after January of 2000. I know that there's nothing more permanent than a temporary government program, but I was hoping we could be the exception. Now I'm beginning to think that the country, whether Senator Moynihan or I are involved or not, is going to continue to face economic consequences for this for literally years after January 2000. Would you agree with that?

Mr. RUBIN. I would say get a technology level cabinet position. There's no place for technologies in the cabinet, and it's an integral part of society and business, and this is just coming from me as a person, but that's why business scrambled to deal with this. This has no home and technology is an interwoven fabric of our next millennium.

Chairman BENNETT. One of the unknown unknowns, therefore, is the amount of economic drag that will be created after January 2000 in terms of slowing down growth, not only in this country but around the world.

One last question. I'm on a fishing expedition here, but when I have good witnesses I love to do that.

Mr. RUBIN. Thank you.

Chairman BENNETT. Do you have any view as to what the wealth transfer impact of the Year 2000 would be? Let's go back to the analogy of the oil crisis that occurred in the mid-'70's. That pro-

duced an enormous wealth transfer with the money going out of Europe and Asia to a lesser extent, but still significant out of the United States into the pockets of sheiks and desert principals in the Middle East. It went from there to banks in Switzerland and some of it to casinos and over time has been recirculated back into the economy, in the world economy, but in that immediate period of time, there were hundreds of billions of dollars that transferred into the Middle East by virtue of the oil shock.

I suppose it's in your category of unknown unknowns, but I saw in the Mexico crisis which Senator Dole assigned me to handle for him, the speed which in today's world that money came out of Mexico as soon as that crisis developed. It wasn't a case of people walking through airports with attache cases in their hands with pieces of paper, it was a couple of key strokes electronically, and the wealth transfer out of America could be accomplished in a matter of hours.

Now, have either of you given any thought to what could happen around the world in terms of foreign investment coming out of particular economies in a wealth transfer that could cripple countries?

Mr. RUBIN. There's two levels of wealth transfers that are happening here. When the Year 2000 crisis became recognized, the global software economy changed. That's where work is done and how money is papered versus technology. Suddenly the gates opened up in India and people tried to send work offshore. So the global distribution of technology work changed in the very short-term.

This is not exactly the question, but there are a whole bunch of market dynamics here, because U.S. companies trying to offload their load started moving work to India, not in a negative sense, people taking the opportunity to be offshore suppliers started to fill the void for a labor market and absorb that, you see that in a couple of these reports.

I would probably refer the financial question to people on the other panels, but one piece, you can clearly see that in terms of competitive advantage, from testimony you heard, global financial services firms that are able to cope with the problem, able to line up with end to end transaction processing and do their contingency planning will be in a position to either absorb work, absorb the financial transactions, move work to other markets, bypass markets. There's a mobile market going on, you start to see mergers and acquisitions. What the market looks like, I don't know, I think it's very insightful. Two levels, the technology underneath it will move and the financial markets, so I would refer to other panelists some of your financial questions.

Ms. BEDER. I guess I would tackle it on a different level and say this is precisely the question that one has to ask if you are a global institutional investor or a pension fund and you have a portfolio of all kinds of stocks and bonds that are supposed to meet your future liability schedules or if you, for example, are a banking institution who has a portfolio of loans and other transactions, and I think the whole question is, what happens to the value of that portfolio, therefore, to the health of your ability to meet your liabilities, the pension fund or as a mutual funds in terms of the owners of your shares or as a bank in terms of your quality, and the simple an-

swer is there will be a huge wealth transfer, because in each one of the industries it's probably the case that whoever some of the leaders are now may stumble and fall and other people will take the opportunity with Y2K glitches, primarily on a business continuity level to become new leaders.

Much of that is a wealth transfer within the economy rather than necessarily across the borders, I believe, and I also believe that the Y2K impact may be very small, not because people have felt that Y2K is a reason to pull their money out of Asia or South America, or frankly a lot of Europe because of the uncertainty of the European union, because they're doing that for the economic situation, the uncertainty already, so I tend to think the wealth transfer will be far more within the country, but it will be very significant, there will definitely be banks, pension funds and mutual funds that get into trouble.

Chairman BENNETT. Thank you.

Senator MOYNIHAN. Sir, I think we've had a wonderful morning, and very much thank all the witnesses that came here with careful statements and I get more concerned about this all the time. I'm glad your committee is up and running, and this might be the only thing between us and chaos.

Chairman BENNETT. Well, let's hope it is. I say to people, my fondest dream will be to open a newspaper and it probably will just be in my home town because no one else would care, but my fondest dream would be to open a newspaper on say the 5th or 6th of January, 2000 and have an editorial saying Senator Bennett was an alarmist because look, everything went smoothly and there are no difficulties, and we should censure the Senator for having been so excited about something that turned out to be nothing.

Senator MOYNIHAN. Mr. Chairman, we know things are going to go well in Salt Lake City. They always go well in Salt Lake City. Isn't that right? Statistics prove it.

Mr. RUBIN. If you'd like it proven, we can arrange it.

Chairman BENNETT. I just thought that as the efforts of all of us on the committee and in the Congress, there will be a minimum of disruption, but I'm afraid I'm with those who say in spite of our very best efforts, the unknown unknowns, if nothing else, and the known unknowns are enough to keep me worried at night.

I very much appreciate the hearing, I appreciate the hospitality of the good people of New York, Manhattan, and the high quality of witnesses, Senator. We thank you for that. The hearing is adjourned.

[Whereupon, at 12:20 p.m., the committee adjourned.]

APPENDIX

ALPHABETICAL LISTING AND MATERIAL SUBMITTED

PREPARED STATEMENT OF WILLIAM A. BAUTZ

Chairman Bennett, Senator Dodd, Senator Moynihan and Members of the Committee. I am William A. Bautz, Senior Vice President and Chief Technology Officer of the New York Stock Exchange (NYSE or Exchange). Thank you for providing me with this opportunity to discuss the impact of the Year 2000 computer problem, as well as potential solutions to address this problem. We view the dimensions of this issue as enormous, with potentially disastrous global consequences to both business and government.

As the world's foremost securities market, the NYSE is taking a leading role in promoting awareness of the Year 2000 computer problem among our 3,700 listed companies, which include 350 non-U.S. companies; the securities industry; and other capital markets throughout the world. We have worked hard to assure that our own systems will be Year 2000 compliant far in advance of the turn of the century. However, as important as our market is, it is only one, interconnected component of a global market. Much remains to be done to ensure that all the international capital market participants are prepared to move smoothly into the next millennium. Our goal is to ensure that the first day of the Year 2000—January 3, 2000—will be just another trading day throughout the world.

At the outset, Mr. Chairman, I would like to commend you and your colleagues, for fostering public awareness of the Year 2000 problem. The Special Committee can devote the necessary time and energy to directly address the problems presented by the Year 2000 and develop solutions for both government and the private sector to work together to overcome the challenges of this technological challenge. I would concur with the recent statements of Dr. Andrew Grove of Intel, that Congressional oversight hearings play a critical role in raising the profile of this problem and give heightened urgency to remediation efforts.

The potential economic impact of the Year 2000 computer problem on our domestic and international markets is profound. With our world economy so dependent on computers and technology, we cannot overestimate the impact if a substantial portion of our automated systems malfunction—or possibly cease to operate—on January 1, 2000. Because of the interconnectivity of the world's financial markets, there is no concept of merely an "isolated" problem if a major market, financial center or market participant is not prepared for the new century.

The Securities Industry Association (SIA) refers to solving the Year 2000 computer problem as "the biggest business-technology effort that the world has ever experienced." Estimates vary on what it will cost to address the Year 2000 situation. One estimate is that it could cost from \$1.00 to \$1.50 per line of code—the equivalent of \$500 to over \$1,000 per affected computer program. Such a conversion process could cost even a medium-sized company over \$4 million. Another estimate places the cost on business and the public sector in the United States at \$100-\$200 billion and the worldwide total at \$600 billion. These estimates constantly are being revised upwards.

NYSE EFFORTS TO ADDRESS THE YEAR 2000 COMPUTER PROBLEM

At the NYSE, we are addressing the Year 2000 issue on multiple levels, beginning with the direct impact of this issue on the NYSE itself, and extending to the international capital markets; our member firms, for whom we have oversight responsibility; and our listed companies, which include a dominant share of the world's major corporations. These multiple levels of response are necessary because we are part of global industry that can best address the year 2000 jointly—through collabo-

ration and information exchange. After discussing our activities on each level, I will conclude by offering our perspective on the role of government.

THE NYSE AND THE SECURITIES INDUSTRY AUTOMATION CORPORATION (SIAC)

The NYSE first made addressing our own Year 2000 issue an Exchange priority in 1996. At that time, we designated our data-processing subsidiary, SIAC, as coordinator of our efforts to address the issue. SIAC has responsibility for addressing our mission-critical trading and regulatory systems, while we are handling internally our administrative systems. I am personally responsible for our internal Year 2000 compliance efforts and for coordinating these efforts with SIAC.

Our preparations have progressed as we have introduced new technology and taken a range of other readiness measures. Over the last decade, the NYSE invested more than \$1.5 billion in new technology to provide for greater capacity or to install next-generation hardware and software. As we implemented this new technology, we made many of our necessary Year 2000 changes. Most of this technology is complete, tested and in operation. The remaining portions will be finished by the middle of this year. As to other systems, we have a comprehensive program to fix, repair or retire non-compliant systems. We currently are on schedule to have our mission-critical systems in production by December 31, 1998.

We estimate that our cost to achieve Year 2000 compliance will be approximately \$20 million. However, this is only the "direct" cost, and does not include any of the overall costs of our technology upgrade. In large part, our \$1 billion investment over the last decade has provided us with the ability to address this problem at an early date and to reduce our total cost in achieving compliance.

Installing Year 2000-compliant systems is only one step in the process. Equally important is proper testing of our systems. We constantly test our new systems internally, and we test the software and hardware that our vendors provide us. Following this internal testing, our next step is to test with our member firms and the rest of the investment community. Our testing program includes connectivity testing with our member firms, end-to-end functional tests with our industry partners, the SEC and the Depository Trust Corporation, and participation in the industry beta test sponsored by the SIA in July 1998. In this regard, we have already begun testing between ourselves and individual member firms, and our testing program will continue throughout this year and all of 1999.

The next significant step in the testing process will be "beta testing," which is scheduled for July of this year. Under the leadership of the Securities Industry Association, the beta testing will consist of 15 to 20 member firms and all the securities markets. Not only will this test cover all products, it also will cover all aspects of the trade-processing system, from order entry to clearance and settlement. The test will simulate trade-processing for four trading days from December 29, 1999 through the first trading day of January 2000. The beta test will check both the NYSE and member-firm systems for programming bugs, while also verifying that the test itself is effective.

Following the beta testing, we plan to participate in industry-wide testing in 1999. By this time, all of our systems should be Year 2000 compliant. This round of testing will include all our member firms, all U.S. markets and all securities industry utilities. We will conduct these tests on weekends, with all participants in the testing using Year 2000-compliant production platforms. The first of these industry-wide tests is scheduled for March 1999.

INTERNATIONAL CAPITAL MARKETS

The NYSE is working on a number of different fronts with international industry organizations to address Year 2000 issues. In October 1997, Edward Kwalwasser, Group Executive Vice President of the NYSE, presented a memo detailing Year 2000 issues to the regulatory subcommittee of the International Federation of Stock Exchanges (FIBV), and also distributed a copy of a proposed survey designed to help the FIBV collect relevant data from its members. These documents were subsequently acting to the technology subcommittee of the FIBV.

The NYSE, acting in close collaboration with the SIA, has also raised Year 2000 issues with the International Organization of Securities Commissions (IOSCO), where Mr. Kwalwasser serves as chair of the Year 2000 subcommittee. Following presentations at IOSCO's general meeting in Taipei in November 1997, a member survey was provided to the subcommittee's vice chairs for Europe, Asia and South America. A copy of the survey was also made available to the Canadian Dealers Association.

Earlier this year, the Bank for International Settlements (BIS), jointly with the Basle Committee on Banking Supervision, the Committee on Payment and Settle-

ment System, the International Association of Insurance Supervisors and the International Organization of Securities Commissions, sponsored a global roundtable on the Year 2000. Their discussions confirmed that the Year 2000 issue must remain a top priority of senior management and that public and private bodies should coordinate their focus on issues and approaches.

The sponsors recognized the complexity of the issue and recommended that financial market supervisors around the world implement programs to coordinate Year 2000 readiness. To provide greater market transparency, they called on all market participants to share critical information and they formed a "Joint Year 2000 Council," comprised of senior members of each organization to coordinate their efforts. These efforts include strengthening and widening of external testing programs; improving information sharing among market participants, their vendors and service providers; establishing market conventions and procedures for dealing with potential contingencies; and reinforcing the role of oversight bodies such as supervisors and auditors.

NYSE MEMBER FIRMS

More than 300 of the nation's broker-dealers that deal with the public are NYSE member firms, for which we have primary oversight responsibility as their "designated examining authority" ("DEA"). These broker-dealers carry and clear transactions for approximately 91 percent of all customer accounts maintained by U.S. registered broker-dealers. We have woven Year 2000 compliance into our surveillance and examination program for these firms. As part of our monitoring process, we have created an internal Year 2000 surveillance committee to coordinate our relevant surveillance and examination efforts. NYSE member firm regulation staff members contact each of our member firms quarterly regarding the member firm's Year 2000 compliance efforts. In addition, we include Year 2000 readiness as part of our annual financial and operational examinations. Our efforts are focused on trying to ensure that our member firms are prepared for the industry-wide testing scheduled for early 1999.

Last May, we sent a memo to our member firms on the Year 2000 problem. In that memo, we advised each firm that it should designate a senior official as having responsibility to oversee the firm's Year 2000 project. We further advised the firm that it should identify the scope of its Year 2000 problem and that it should allocate the people, time, and money necessary to address the problem. The memo stated that, realistically, the Year 2000 project should have a target completion date of December 1998, with 1999 available for system testing and adjustments.

Our May 1997 memo also asked member firms to complete a survey regarding their Year 2000 plans in an effort to determine their preparedness. While we generally were pleased with the results of the survey, we identified a few firms that needed to focus more closely on this problem. In late 1997 we conducted a second survey to determine the readiness of vendors, correspondent brokers and other third parties that interface with NYSE member firms. In reviewing the responses to this survey, Exchange staff noted some minor problems, which staff members have discussed with member firms.

The Exchange has used these two surveys to establish generic milestones. As part of the quarterly discussions with member firms, Exchange staff discuss the firms' progress towards meeting these milestones. These discussions also include updates on the milestones the firms themselves have established, as reported in the first survey. Once a firm indicates that it is Year 2000 compliant, the Exchange will request a written confirmation of that fact from the firm's chief executive officer.

The SEC also is currently considering on an expedited basis a proposed change to its record-keeping rules to require broker-dealers with \$100,000 or more in net capital to file two reports on Year 2000 readiness. These reports would cover such areas as the broker-dealer's plans to address the issue, the progress in meeting those plans and any contingency plans for any problems that may arise. The NYSE welcomes this effort, which will provide yet another surveillance and compliance tool.

NYSE member firms would need to file these reports both with the SEC and with the Exchange, as the broker-dealer's DEA. The first report would be due 45 days following adoption of the rule amendment and the second report would be due within 90 days of the broker-dealer's 1998 fiscal year-end financial statements. The SEC would require a broker-dealer's public accountant to file an attestation with the second report giving the auditor's opinion as to whether there is a reasonable basis for the broker-dealer's assertions in that report.

These reports will provide both us and the SEC with comprehensive information on Year 2000 compliance efforts. In addition, the requirement for two reports will

provide a basis to judge the progress of broker-dealers in developing and implementing Year 2000 compliance programs. If the SEC adopts these rule amendments, the NYSE will be coordinating closely with the SEC and the other DEA's to implement the reporting requirements.

THE SECURITIES INDUSTRY

The SIA has taken a leadership role in efforts to achieve Year 2000 readiness in the securities industry generally, working not only with the NYSE and our member firms, but also with all the securities markets, broker-dealers, vendors and other service providers. With the support of the NYSE, the SIA has organized conferences and seminars around the country to educate market participants on the problem and to keep the industry informed about the latest developments in the area, including testing schedules.

Under the auspices of a Year 2000 steering committee, which includes senior industry members such as Robert Britz, Group Executive Vice President of the NYSE, the SIA has established numerous working committees to address specific aspects of the problem. These committees include groups focusing on, among other things, data management, testing, exchanges and utilities, third-party vendors, legal and regulatory issues and international issues. The SIA has also formed an international group to promote Year 2000 readiness in other countries, where this issue may not have the same high priority as it does in the United States. Other issues, such as preparing for the conversion to the "Euro" currency, may be crowding the agendas in other markets.

The SIA subcommittees meet regularly, both in full committee and in focus groups. These committees have been pivotal in moving the industry towards Year 2000 readiness. Information on these committees, including meeting schedules and minutes of past meetings, are publicly available on the World Wide Web, which serves as a valuable source of industry information on the problem.

The discipline of this coordinated approach to addressing the Year 2000 problem demonstrates how an industry can work together to achieve a common goal. As was mentioned above, this approach is also being brought increasingly to the international level.

NYSE LISTED COMPANIES

As to listed companies, in addition to holding several hearings on this issue, Senator Bennett has introduced S. 1518, which would require publicly traded companies to disclose their Year 2000 progress in their annual Form 10-K filings with the SEC. Last year, the NYSE brought together the SEC and representatives of our listed companies to discuss this legislation, as well as the broader issue of correcting the Year 2000 problem. We have continued to work closely with the SEC's Division of Corporation Finance and its director, Brian Lane, to ensure that our listed companies receive and understand the division's staff bulletins on this issue. Our listed companies need to appreciate that Year 2000 remediation is likely to be material to their businesses, and that they should disclose to their shareholders and customers their progress in the conversion process.

In this regard, the SEC staff has issued Staff Legal Bulletin No. 5 on Year 2000 disclosure. The bulletin reminds public companies and other SEC registrants that they must consider disclosure regarding costs, problems and uncertainties associated with the Year 2000. The staff originally issued the bulletin in October 1997, and revised it in January of this year, emphasizing that if a company has not made an assessment of its Year 2000 issues—or has not yet even determined whether it has material Year 2000 issues—the disclosure of that known uncertainty is required.

The discipline of preparing disclosure material on the Year 2000 problem will help focus a company on the steps it needs to take to address the problem. Analysts, shareholders, customers, and competitors will review these disclosures, and the marketplace will help determine whether a company is adequately addressing this area. Failure to take the necessary steps will result not only in potentially harmful consequences when we turn the calendar at the end of December 1999 (if not before), but it will also adversely affect a company's stock price and customer base if the market judges that it is not devoting the necessary time and resources to this project.

THE ROLE OF GOVERNMENT

Even with the current attention to addressing the Year 2000 problem, we recognize that this is an area that the private sector cannot address alone. As noted

above, the SEC has addressed this area both with respect to disclosure by public companies and through its oversight of participants in the securities industry.

In addition, government performs a vital task by calling attention to the problem and reinforcing the need for prompt action in both the public and private sectors. In particular, hearings such as these surface important issues that require coordinated effort to resolve. We commend the leadership of Senate Majority Leader Trent Lott for creating this Special Committee to address the Year 2000 Technology Problem. We commend the efforts of the Special Committee and its Chairman, Senator Bennett. We also applaud President Clinton for creating a Year 2000 task force to oversee the federal government's Year 2000 conversion progress. The creation of this task force and the requirement that cabinet secretaries respond to the President's inquiries about the progress of cabinet departments and federal agencies will help ensure that the federal government is able to cross the bridge into the next millennium.

Thank you for the opportunity to present this testimony.

PREPARED STATEMENT OF TANYA STYBLO BEDER

Chairman Bennett, Senator Moynihan and Members of the Special Committee: I am pleased to appear today to discuss the progress of financial firms—both foreign and domestic—in managing the Y2K problem as part of the Special Committee's consideration of this topic. My name is Tanya Styblo Beder and at present I am a senior partner and one of the original founders of Capital Market Risk Advisors, a firm specializing in independent risk assessment, valuation and risk oversight implementation for all types of financial, operational and strategic risk. CMRA's clients include banks, broker-dealers, insurance companies, pension funds, mutual funds, hedge funds, thrifts and credit unions, custodians, corporations, rating agencies and financial software firms in the United States, Europe, Asia, Australia and New Zealand, Mexico and Canada. CMRA's work is both reactive and proactive: For example, we assess and contain existing risk problems that cause firms to bleed money, as well as evaluate and implement programs to manage both current and future exposures related to market risk, credit risk, operational risk, derivatives risk, and model risk.

My testimony today represents my personal views, based on my experience with financial institutions around the world since the late 1970's. My opening remarks will summarize my detailed statement. I now ask that my detailed statement be entered into the record.

GENERAL FINDINGS

Y2K is the most crucial issue facing every financial institution in the United States, and one of the top two or three issues facing institutions in other countries around the world. With only 18 months to the turn of the century, I feel that financial institutions and the global systems that process their transactions around the world are far from compliant. Nonetheless I do not join those who predict a huge global recession or prolonged mayhem in the financial markets. This is not a small statement for me to make, for as recently as a year ago I was very much afraid that Y2K would bring dire consequences to the financial sector. My fledgling optimism for financial firms in the United States is based on my observations of increasing momentum to implement contingency plans that lower risk during the critical period.

Y2K is big, pervasive and global. Because information is a such vital resource for the U.S. economy, the potential impact on individuals and public and private entities compares to that of the asbestos and oil crises over the past 25 years. Spending to solve the technological aspects is expected to run as high as \$600 billion, and the cost of business continuity issues—interruptions due to Y2K—is estimated as high as \$1 trillion. The total spending necessary to deal with Y2K will exceed the amount the U.S. spent, adjusting for inflation, fighting the Vietnam Conflict (\$500 billion) but with luck will not reach the amount spent to win World War II (\$4.2 trillion).

Analyzing Y2K is like peeling an endless onion—each layer of issues leads to another layer, often involving greater degrees of interdependence between players in all three facets of the economy—financial firms, non-financial firms and the public sector. As an example, consider a bank. It is one thing to Y2K-proof the PC on each employee's desk. It is quite another to determine how each credit in a global loan portfolio, plus each counterparty credit in a multi-trillion dollar derivatives market, will be impacted either directly by Y2K or indirectly via exposures to others.

While a great deal remains to be done, my recent review of dozens of key market players—including banks, broker-dealers, pension funds, mutual funds, custodians

and corporations in major capital markets around the world—indicates an increase in the amounts of resources devoted to Y2K technology issues as well as to business continuity issues. For most large firms, the Y2K hot spots, both pre- and post-millennium, are better defined than 1 year ago. Battle plans of individual institutions have evolved along three primary dimensions:

- 1. Y2K exposures under the firm's control
- 2. Y2K exposures to others
- 3. Contingency plans for Y2K exposures outside the firm's control

In general, large and medium-size financial firms in the United States and Australia have analyzed and are on track to address Y2K exposures under their control. Examples of exposures under a firm's control include internal systems such as PC's and mainframes; embedded system devices such as elevators and security systems; business processes such as settlement/clearing activities or the issuance of pension or annuity checks; and computer code.

Many large financial firms, both domestic and foreign, in the United States and Australia are now conducting or are close to conducting Y2K tests of their corrected internal systems. This is done by rolling the clock forward to 15 or so key dates—including the Millennium—at institutions' back up and recovery sites, or on-site using parallel equipment. This leaves 12 months or so for large institutions to address problems that arise.

As for Y2K exposures to others, large financial firms in the United States and Australia also are reviewing in detail their exposures to counterparties in financial transactions (including their loan and investment portfolios) and to their supply chain. Firms typically conduct the review of outside vendors via survey or questionnaire and are aware of their reliance on the representations of others. According to the GartnerGroup, typically only 25 percent of the surveys are returned with response information, and fewer than 10 percent of those returned are accurate.

This disappointing news from vendors has moved banks to consider implementing financial transactions designed to reduce exposures—and particularly cash flows—from the December 1999 through March 2000 period. Examples are contingency plans that envision completing year-end portfolio trades by December 15th 1999; amending loans or entering derivatives with customers and counterparties to move cash flows out of the December to March period; and contingency planning for malfunctions in the wire transfer, settlement, credit card, ATM, and other critical systems.

Although preparations are well underway in the United States and Australia, the story is quite different in other countries. Regulators around the world continue to encourage and demand Y2K efforts by financial firms, but there is wide agreement that financial firms in Asia are far more concerned with whether they survive until 2000—an issue we have named "If 2K"—rather than Y2K systems issues. Moody's recently reported that 49 major Japanese banks planned to spend \$249 million as a group on Y2K compliance. This amount is only a fraction of Citicorp's planned \$600 million program, and only equal to Chase's planned \$250 million.

Financial firms in Europe are so absorbed by the systems challenges posed by European Monetary Union that non-EMU projects, including Y2K conversions, are commonly suspended or postponed. A parallel situation exists in the United States, with some firms so absorbed by the systems challenges of Y2K that they have placed moratoriums on non-Y2K projects, such as dealing with a single currency in Europe. This will have ramifications for our financial system in the future.

The Brazilian financial sector is slow—fewer than one-third of the banks have started systems conversions. As in Asia, South America is more concerned with economic health than Y2K. Russia and Eastern Europe is a financial black hole, especially given the significant variation in regulatory oversight.

There is, however, some good news to report. In the United States, financial firms are using good old-fashioned prudence to manage their risk. They continue to reduce their exposures to the financial firms in Asia and Europe either through selling the assets they hold, or via some combination of financial transaction amendments and derivatives. In Europe, the happy news is that EMU conversion poses systems challenges similar to Y2K conversion, hopefully shortening the time that will be required to attain Y2K compliance.

CONCLUSIONS

The dire situation in many Asian countries and implementation of European Monetary Union will keep Y2K a low priority, as these markets experience some of the largest wealth transfers of all time. U.S. financial firms are focused on reducing not only their exposures to Asia and Europe, but also to public sector and middle mar-

ket entities within the United States. The creation of contingency plans that remove cash flows from the critical Millennium period are prudent measures that are the basis of my fledgling optimism as to the risk of Y2K exposure of U.S. financial firms.

In closing, I offer eight areas that keep Y2K chiefs up at night, and merit focus by The Special Committee on the Year 2000 Technology Problem:

- 1. *Telecommunications and Energy*.—Most large financial firms conduct 80 percent of their transactions electronically, and 25 percent or more of their transactions in the inter-bank market. To summarize the remarks by many Y2K chiefs in this area, “we don’t have a clue:” this leads me to conclude that reliability on telecommunications is a Y2K wildcard. More than 80 percent of telecommunications managers in British firms polled in February said they feared a “large” risk from the millennium bug. The deregulation of industries such as communications and utilities has diverted significant attention from operating issues, making them slow to address millennium questions.
- 2. *Exposure to the middle market*.—If a company cannot deliver its product because key suppliers cannot deliver, or because key customers cannot complete purchases, the financial consequences are significant. Companies in the Fortune 500 plan to spend an estimated \$11 billion on Y2K fixes (including \$3.5 billion by the largest financial firms) and are focused seriously on business continuity. The GartnerGroup Study of 6,000 companies in 47 countries indicated that 30 percent of all companies and governments have not started on Year 2000 compliance efforts, but that 88 percent of the laggards were companies with fewer than 2,000 employees. Small companies are more likely to be able to operate manually and to be able to manage their full supply chain in a crisis. But middle market companies are likely too complex to operate manually, and probably have not devoted sufficient resources to Y2K, and so are another wildcard. Some analysts predict that up to 20 percent of middle market companies will have problems with Y2K, leading to significant increases in bankruptcies of currently healthy firms. Of particular concern in the financial sector are regional U.S. banks that control about 20 percent of U.S. banking assets, and regional insurers who supply coverage for 30 percent of Americans.
- 3. *Information sharing*.—Even though a great many Y2K problems have been solved, information sharing among parties who stand to benefit from others’ knowledge is hampered by the fear of litigation. During my review, several Y2K chiefs commented “we are happy to discuss Y2K, however under legal advice there will be issues that we will not be able to discuss, at least not on the record.” Future litigation costs surrounding Y2K are estimated to range between \$1 trillion and \$4 trillion—an amount over and above the \$1.6 trillion estimate I mentioned earlier for technology fixes and direct business losses. Perhaps a wartime-type profiteering limitation should be considered for litigation costs, or maximum allowable damage levels, in order to promote the sharing of information.
- 4. *Model risk*.—Moratoriums on systems projects outside of Y2K or EMU have caused some financial firms to postpone critical reviews and updates of their other financial models. This inadvertent neglect creates a potential time bomb for the future. Examples of recent “model losses” are those reported by Bank of Tokyo-Mitsubishi, NatWest, and Swiss Bank in their derivatives books. Future model losses are also likely to be driven by changes in credit spreads, correlations and volatilities driven by changes in relationships among currencies and interest rates and realities in the aftermath of the Asian crisis, EMU and Y2K.
- 5. *Fraud*.—An additional concern for many Y2K chiefs is the potential for fraud. Some firms have corrected hundreds of millions of lines of code, using automated software sniffers versus manual intervention. Those who have relied on manual code correction are more susceptible to fraudulent transfers or other sabotage that may cause harm at future dates. Given the pressure of completing the Y2K fixes, few firms have the luxury of checking each manual change to their source code or other software.
- 6. *Data issues in rolling the clock forward during Y2K testing*.—The question to pose is “How robust are the tests?” The practice of rolling the clock forward to test key dates—including the Millennium—requires far more than changing the date in a computer. The asset, liability and transactions data for the firm must be rolled forward as well, or the tests may not fully test a future transaction and thus give a false sense of security.
- 7. *Impact of mergers and acquisitions*.—The continued global consolidation of financial firms poses ongoing challenges to established Y2K programs. In the

United States alone, 72 percent of the banks have had their computing systems impacted by a recent merger or acquisition. The challenge to managers and regulators is significant—a good pre-merger report card may be invalidated by disparities in systems in the combined entity.

- 8. *Liquidity*.—38 percent of IT professionals say they may withdraw personal assets from banks and investment companies just prior to the Millennium, to protect their personal finances from year 2000 failures. If financial institutions implement contingency plans that prevent preclude use of electronic systems, and consumers thus have to withdraw extra cash to avoid the risk of credit card and ATM failures—for example, to cover their holiday spending in December 1999—how much additional liquidity will the banking system need?

Thank you. I welcome any questions you may have.

PREPARED STATEMENT OF CHAIRMAN ROBERT F. BENNETT

Good morning and welcome to the second hearing of the Senate Special Committee on the Year 2000 Technology Problem. I want to thank Senator Moynihan for inviting us to hold this hearing in New York City, the international financial center and a most appropriate venue for a hearing in which we will examine the Year 2000 readiness of the financial services industry from a global perspective.

In my role as Chairman of the Senate Banking Committee's Subcommittee on Financial Services and Technology, I have examined the Year 2000 preparedness of the financial services industry for more than a year. Throughout this process, one message has come across clearly and consistently. While representatives of the financial services industry in the United States are cautiously optimistic about their own remediation efforts, international Year 2000 preparedness presents a significant wildcard. The United States financial services industry is privy to little specific information about the Year 2000 preparedness of foreign countries and has yet to fully consider and plan for the possible consequences if there are widespread systems failures overseas.

It should be clear to everyone in this country that our economy has become a global economy. The concern over the current economic crisis in Asia illustrates how U.S. companies can be vulnerable to economic downturns overseas. The financial services industry is particularly vulnerable in this environment. American financial institutions deal with their international counterparts virtually every minute of the day as they settle transactions, execute currency trades, and operate offices throughout the world. Americans have invested significantly in foreign stocks, primarily through investment funds, and the stocks of American companies are traded at all hours of the day and night in markets throughout the world.

Given this high level of interaction, it is not surprising to hear witnesses testify, as they have before the banking committee, that any significant computer systems failure abroad could have a devastating impact in the United States. What we have not heard, however, is what this country plans to do to manage those risks. We have called this hearing to begin to assess the Year 2000 preparedness of foreign countries and determine just where and how the United States may be vulnerable. It is no longer sufficient to discuss the international risk generally, we must identify the specific risks, do what we can to solve the problems, and develop and implement contingency plans for the inevitable failures.

PREPARED STATEMENT OF RICHARD R. LINDSEY

I appreciate the opportunity to testify on behalf of the Securities and Exchange Commission (Commission or SEC) to express its views on the readiness of the securities industry and publicly held companies to meet the information processing challenges presented by the Year 2000.

It has become clear to American business—and American regulators—that most of the world's computer systems must be modified before the new millennium. This poses an especially great challenge for the U.S. securities industry for three reasons. First, the industry is enormous. Currently, there are over 1,100 investment company complexes, 8,300 registered broker-dealers, 1,248 transfer agents, and 24 self-regulatory organizations (SROs), including securities exchanges, the National Association of Securities Dealers, Inc. (NASD), and clearing agencies. Second, the industry relies heavily on computerized information processing technology. Third, industry participants are highly interconnected both within the United States and across international borders.

These three factors combined underscore the need for the U.S. securities industry to properly assess the extent of the Year 2000 problem, to correct (or remediate) systems that are not compliant, and to engage in coordinated testing of those systems. A failure by the industry to do these things could endanger the nation's capital markets, as well as the safety of investor assets.

Last month, the Commission staff submitted its second report requested by Congressman Dingell on the progress made by the securities industry and public companies toward meeting the information processing challenges of the Year 2000.¹ This testimony outlines the Commission staff's findings, which are described in further detail in the SEC Staff Report. Based on the information we have received so far, the SEC believes the securities industry is making substantial progress towards addressing potential systemic risks to the U.S. financial services system as a result of the Year 2000 technology challenge. We also anticipate that upcoming industry testing will provide a clearer picture.

I. INDUSTRY PROGRESS TOWARD MEETING YEAR 2000 GOALS

Like any business problem, addressing the problem of Year 2000 compliance in the U.S. securities industry involves several steps. Industry participants must first become aware of the problem and assess how best to address their compliance needs. The problem must then be corrected, or remediated. Remediation, however, requires testing to ensure that it is complete and will be effective. Finally, industry participants must develop contingency plans in order to respond quickly to unforeseen problems as they arise.

A. Awareness and assessment

Throughout 1996 and early 1997, the Commission focused on raising awareness of the Year 2000 problem throughout the securities industry and the need to address it. Through speeches, direct outreach to regulated entities, inspections, and examinations, the Commission encouraged the industry to develop Year 2000 plans and to adequately budget for them. In October 1997, Chairman Levitt sent a letter to every broker-dealer and non-bank transfer agent in the United States urging them to take the Year 2000 problem seriously and to address it on a timely basis. In November 1997, he sent a similar letter to every registered investment adviser.

The Commission is confident that the securities industry is aware of both the scope and nature of the Year 2000 problem. We have been pushing hard to ensure that the entire industry appreciates the full magnitude of the difficulties that will occur if all industry participants do not take immediate steps to implement a Year 2000 compliance program. We have stressed how important it is to the industry to be Year 2000 compliant on time and will have no tolerance for laggards.

B. Remediation

During the past year, the Commission has shifted its focus from educating members of the industry to monitoring their progress in solving the problem. Progress is monitored through direct oversight and examinations, as well as through collaboration with SROs and industry groups. Most of the Commission's information to date has come from self-reporting by industry participants. We believe, however, that we have developed a meaningful picture of Year 2000 progress in the securities industry.

C. Industry-wide testing

The Year 2000 remediation efforts for the securities industry are complicated by the large number of participants and by the extraordinary interdependence that exists among almost all of those participants. Broker-dealers, exchanges, clearing organizations, depositories, transfer agents, banks, and suppliers of market information, among others, must all exchange, process, balance, confirm and settle millions of transactions every trading day.

Each firm individually can prepare its own systems for the Year 2000, but no one can say with certainty how these systems will perform when interconnected. Thus, integrated testing among participants in a Year 2000 environment that simulates as many aspects of a normal trading day as possible is the only meaningful way to reduce the risks of failure to the lowest possible level. Recognizing this, the SIA has taken a strong, proactive lead in organizing industry efforts.

In 1996, the securities industry, led by the SIA, established an ambitious Year 2000 completion schedule. Under this schedule, all exchanges and clearing agencies, member firms, and participants are expected to have completed remediation, test-

¹ See Second Report on the Readiness of the Securities Industry and Public Companies to Meet the Information Processing Challenges of the Year 2000, SEC Staff Report, June 1998.

ing, and implementation of their systems by December 1998. The SIA has formed a number of committees to address key elements of the Year 2000 problem, such as industry-wide testing, third-party software, data provider interfaces, legal and regulatory issues, and exchange and utility testing strategy and schedules.

During 1996 and 1997, the SIA developed working groups to develop test scripts and plans for different product groups (e.g., equities, mutual funds, mortgage-backed securities, etc.). This division is essential since each product has its own unique trading characteristics and processing cycle. The products that make up the SIA test program include equities, listed options, municipal bonds, corporate bonds, unit investment trusts, mutual funds, futures, asset-backed securities, and U.S. government securities. For each product group, there is a separate set of participants, test plans, test dates, and test scripts.

The SIA's program addresses four specific aspects of Year 2000 preparation and testing: (1) coordinating the testing of the exchanges, clearing corporations, and depositories; (2) identifying vendor compliance problems; (3) defining a test schedule for data feeds; and (4) implementing the industry-wide test program.

Preliminary testing for equities is scheduled to begin this month. When testing begins, over two dozen firms will initiate "end-to-end" testing for trading in equities, options, municipal bonds, corporate bonds, unit investment trusts, and mutual funds. Tests for other product groups will take place later this year and firms will also be conducting bilateral tests with their counterparties. Participation in industry-wide testing will be opened to the remainder of the industry in March 1999. The primary focus of the industry-wide testing will be on the industry's more than 300 clearing broker-dealers, since it is those firms that must secure and assume financial responsibility for every trade executed in the market. Testing will not only indicate how well the industry is prepared for Year 2000, but also will help identify potential trouble spots where contingency plans will be needed.

Because the securities industry relies heavily on unregulated third-party vendors, it is important that they also be included in testing. Third-party vendors provide software, hardware, system maintenance, information, and services that link markets, broker-dealers, and customers together. Regulated entities using these vendors do not control how vendors choose to address the Year 2000 problem, yet are responsible for ensuring the integrity of their own operations after January 1, 2000. The substantial use of third-party vendors by regulated market participants further complicates the Year 2000 problem and makes their inclusion in testing critical.

At this time, it is difficult to quantify how prepared third-party vendors are for Year 2000. The SEC staff and the industry have been working closely with these vendors, however, to minimize potential problems. As part of the Commission's contingency planning process, the Commission staff has also begun to compile a Contingency Contact List, which will include the names, numbers, and areas of expertise of Year 2000 personnel at major vendors.

D. Contingency planning

No matter how much progress the industry makes in addressing the Year 2000 challenge, it is virtually certain that some problems will not be discovered or will not be remediated in time. It is, therefore, imperative that the industry engage in contingency planning both to minimize disruptions and to correct them quickly as they occur. To help oversee this effort, the Commission is participating in various government and industry contingency planning initiatives.

For example, the Commission staff participates in the Contingency Planning Working Group, which is jointly sponsored by the Federal Reserve Bank of New York, the SIA, and the New York Clearing House. Other participants include SRO's, broker-dealers, banks, regulators, vendors, and industry groups. The Contingency Planning Working Group was formed to share information on the industry's Year 2000 compliance efforts and to address potential system risk implications. While the focus of this group is principally on the U.S. domestic market, it also intends to identify cross-border issues and determine whether these issues are being addressed.

The Commission is also working with other financial regulators to establish contingency plans. Under the leadership of the SEC, the Year 2000 subgroup of the President's Working Group on Financial Markets is focused on contingency planning issues. Each SRO is also working on comprehensive Year 2000 contingency plans. In addition, the SEC is developing its own contingency plans.

E. Progress of SEC-regulated entities

Today, a meaningful picture of Year 2000 progress in the securities industry is beginning to emerge. The picture shows that progress is, indeed, being made.

1. Self-regulatory organizations

SRO's include the nation's securities exchanges, its clearing agencies, and the NASD. SRO's play a key role in both operating the nation's securities markets and in overseeing the companies and individuals who participate in those markets.

Since 1996, the Commission staff has conducted four surveys of the SROs' Year 2000 efforts. The most recent survey requested: (1) a narrative description of what each SRO was doing to ensure Year 2000 progress; (2) numerical data regarding those systems critical to ongoing operations; (3) a description of any problems in meeting time schedules; and (4) a discussion of their contingency planning efforts.²

The information gathered to date indicates that the SROs are on schedule to be compliant on time. All SROs have completed the awareness and assessment phases of the Year 2000 process, and are far enough along in the remediation process to begin the first phase of industry testing, which is scheduled to begin later this month. The progress of the SROs is summarized in the following tables. The first table addresses securities exchanges and the NASD; the second addresses clearing agencies.

STATUS OF EXCHANGE AND NASD MISSION-CRITICAL SYSTEMS BEING REPAIRED

	Assessment	Remediation	Testing	Implementation
Milestone to be completed	Mar. 1998	Nov. 1998	Nov. 1998	Dec. 1998
Percent completed as of May 15	99.2 ¹	73.1	51.7	26.0

¹ As of the date of this testimony, the assessment phase has been completed for 100 percent of exchange and NASD mission-critical systems.

STATUS OF CLEARING AGENCY MISSION-CRITICAL SYSTEMS BEING REPAIRED

	Assessment	Remediation	Testing	Implementation
Milestone to be completed	Jan. 1998	Sept. 1998	Dec. 1998	Dec. 1998
Percent completed as of May 15	100.0	83.6	62.9	28.6

The staff believes that the SROs have made substantial progress, and plans to continue monitoring their efforts closely. The staff will also continue to monitor the SRO membership inspection and surveillance programs to ensure that they continue to vigorously address the Year 2000 compliance of their members.

2. Broker-dealers

Broker-dealers are the primary intermediaries between investors and the securities markets. They are at the heart of trading in our markets. For that reason, we have made it very clear to broker-dealers that Year 2000 failures will have severe consequences. For example, the Commission staff has advised broker-dealers that any broker-dealer that cannot maintain accurate books and records due to Year 2000 problems could be in violation of the Commission's books and records rules.³ Similarly, any broker-dealer that is unable to determine its net capital requirements or the amount of customer assets in its possession due to Year 2000 problems could become subject to Commission action, which could result in closure of the firm and the transfer of its customer accounts to another broker-dealer.

Under the U.S. system of self-regulation, the primary oversight responsibility for broker-dealers resides with the SROs. To monitor broker-dealer compliance efforts, the SEC has been working closely with both the NASD and the New York Stock Exchange (NYSE). Earlier this year, the NASD mailed surveys to more than 5,500 member firms to evaluate their level of preparedness for Year 2000. The NYSE also surveyed its members regarding Year 2000 efforts.⁴ Results of the SRO surveys confirmed the expected—significant but uneven progress in the broker-dealer community.

² The staff requested that the SROs adopt the Office of Management and Budget reporting format to report the progress made in moving those systems through the various phases of achieving Year 2000 compliance.

³ Securities Exchange Act Rule 17a-3. See also Securities Exchange Act Rel. No. 39724 (Mar. 5, 1998), 63 FR 12056 (Mar. 12, 1998).

⁴ Broker-dealer members who are members of both the NASD and NYSE were permitted to respond to the NYSE survey only. Therefore, NASD survey efforts target its 5,238 "designated members." As of June 4, 1998, 5,080 member firms had responded to the NASD survey. A total of 306 responses representing 327 broker-dealers were received in response to the NYSE survey.

The following tables reflect how broker-dealers estimated their progress in achieving Year 2000 compliance.

FIRMS RESPONDING TO NYSE SURVEY ¹

Percent complete (as of 3/31/98)	Assessment	Remediation	Testing	Implementation
100 percent complete	89	48	34	32
51-99 percent completed	4	21	13	16
1-50 percent completed	2	21	24	20
0 percent completed	0	3	13	14
No response	4	7	16	18

¹ Due to rounding, some of these figures do not add up to 100 percent.

FIRMS RESPONDING TO NASD SURVEY

Type of firm	Number of firms reporting	Firms reporting programs 0 percent complete (percent)	Firms reporting programs 1 percent through 39 percent complete (percent)	Firms reporting programs 40 percent through 69 percent complete (percent)	Firms reporting programs 70 percent through 100 percent complete (percent)
Introducing firms	2,686	17	16	17	50
Clearing firms	322	10	25	23	42
Other firms ¹	1,339	16	15	17	52
Total	² 4,347	16	17	17	50

¹ The NASD identified firms in its "other" category as insurance companies, investment companies, merger and acquisition companies, limited partnerships, and other firms not specifically designated as introducing or clearing firms.

² 733 of the 5,080 firms that responded to the NASD's survey did not respond to this question.

It appears that many of the firms that reported the zero percent completion are small firms relying on third-party vendors for their information processing, and, therefore, have no direct remediation programs. The Commission staff and NASD are in the process of following up with broker-dealers to determine whether this response is reasonable. In addition, the Commission will focus on those broker-dealers who did not respond to the NASD survey, as well as those members who provided incomplete responses. As industry testing begins this summer and the Commission and the SROs obtain a more complete picture of the progress broker-dealers are making in their Year 2000 programs, we will target firms that appear to be lagging behind.

While SRO surveys have provided much useful information about the progress of broker-dealers, the Commission has determined that survey data alone is not enough. In order to make broker-dealers directly accountable to the Commission with respect to their Year 2000 efforts, last week the SEC adopted a rule that requires broker-dealers to file two reports with the SEC regarding their Year 2000 compliance. Broker-dealers are required to file the first report by August 31, 1998. The second report must be filed by April 30, 1999.

This new Year 2000 reporting requirement differentiates between broker-dealers based on their size, type of business, and relative risk they pose to customers and the market if they are not Year 2000 compliant. Smaller broker-dealers are only required to complete an objective check-the-box style Year 2000 questionnaire. Larger broker-dealers, in addition to completing the Year 2000 questionnaire, are required to provide a narrative discussion of their efforts to prepare for the Year 2000. For example, larger broker-dealers are required to discuss (1) whether the firm has a written Year 2000 plan that addresses all major computer systems for the firm worldwide; (2) the firm's current progress on each stage of its Year 2000 project, including the results of both its internal and external testing; and (3) whether the firm has written contingency plans.

Unlike the proposed rule, the rule as adopted does not require an independent public accountant to review several specific assertions made by the broker-dealer's management. Based on comments received, however, the Commission is soliciting additional comments on the appropriate level of independent public accountant review.

The broker-dealer's Year 2000 reports will assist the Commission staff and the SRO's in coordinating oversight efforts. The new reporting requirements will also reinforce the need for broker-dealers to aggressively prepare for the Year 2000.

3. Transfer agents

Transfer agents play an integral role in the national clearance and settlement system by recording changes in securities ownership, distributing dividends, and performing other related functions. This role makes it very important that transfer agent systems be Year 2000 compliant.

The information the Commission staff has about non-bank transfer agents' progress in addressing the Year 2000 issue is mixed. During 1996 and 1997, SEC examinations focused on raising the Year 2000 awareness of non-bank transfer agents.⁵ Ninety-eight percent of those non-bank transfer agents examined⁶ indicated that action to correct Year 2000 deficiencies had already been taken or was planned. In early 1998, SEC examinations of non-bank transfer agents shifted to a review of specific programs and targets for implementation. A more recent survey by the SEC staff, however, yielded less encouraging results.

In January 1998, the staff conducted a survey of non-bank transfer agents asking whether the board of directors had approved and funded a Year 2000 plan and what levels of management are responsible for addressing Year 2000 problems. Of the transfer agents responding to the survey, 76.4 percent reported that they had developed a Year 2000 plan, and 10.1 percent reported that, although they had no Year 2000 plan, their vendors did. 13.4 percent of those transfer agents that responded, however, indicated that they had no Year 2000 plan at that time.

The Commission has also adopted a rule, similar to that adopted for broker-dealers, that requires non-bank transfer agents to file with the Commission new Form TA-Y2K. Part I of Form TA-Y2K is a check-the-box style Year 2000 report, which will provide the status of the transfer agent's Year 2000 remediation efforts. Generally, non-bank transfer agents (other than small transfer agents and issuer transfer agents) must also complete Part II of Form TA-Y2K. Part II requires that non-bank transfer agents provide a narrative discussion of their efforts to address Year 2000 Problems.

Each non-bank transfer agent must file its first Form TA-Y2K with the Commission by August 31, 1998. The second Form TA-Y2K must be filed with the Commission by April 30, 1999. As with broker-dealers, the data collected under this rule would assist the Commission in identifying weaknesses in transfer agent compliance. The Commission's staff plans to look carefully at those transfer agents that do not appear to be making adequate progress.

4. Investment advisers and investment companies

Investment advisers assist both individuals and investment companies in making investment decisions and, today, investment companies (such as mutual funds) are one of the most popular means through which individual investors participate in the securities market. The Commission's approach to addressing Year 2000 compliance by investment advisers and investment companies mirrors the approach taken with SROs, broker-dealers, and transfer agents. First, the Commission has been working with an industry group, the Investment Company Institute (ICI), to obtain information in order to monitor the progress of investment advisers and investment companies in addressing the Year 2000 problem. Second, through inspections and examinations, the Commission staff is obtaining additional, independent information on their progress. Third, last month, the Commission proposed a rule similar to those proposed for broker-dealers and transfer agents that would require registered investment advisers to report their progress, as well as the progress of any investment companies they advise, in making systems Year 2000 compliant.

The proposed rule would require reports from most investment advisers registered with the Commission (an adviser that has at least \$25 million of assets under management or is an adviser to a registered investment company).⁷ Advisers would report twice—once 30 days after the effective date of the rule and again eight months later.⁸

Current information indicates that while funds are making progress toward resolving their Year 2000 problems, more needs to be done. A majority of funds re-

⁵ Under Section 17A of the Securities Exchange Act of 1934, each transfer agent must register with the Commission. The federal banking agencies, however, are the appropriate regulatory agencies (ARAs) for bank transfer agents. These bank transfer agents have either the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency, or the Federal Deposit Insurance Corporation as their ARA. The Commission is the ARA for non-bank transfer agents. There are approximately 1,248 transfer agents registered with the Commission, and the Commission is the ARA for approximately 695 of them.

⁶ The SEC examined 83 non-bank transfer agents.

⁷ As provided in Section 203A of the Investment Advisers of 1940, small investment advisers satisfying specified criteria are not required to register with the Commission.

⁸ Investment Advisers Act Rel. No. 1728 (June 30, 1998).

sponding to a recent ICI survey indicate that they plan to complete their Year 2000 programs by December 1998.

PROGRAM COMPLETION DATES FOR MUTUAL FUNDS¹

	1998 2nd Q or earlier	1998 3rd Q	1998 4th Q	1999 1st Q	1999 2nd Q	1999 post 2nd Q
Percent of funds	3	5	72	8	11	1

¹ Information reflects responses to the ICI's questionnaire dated March 16, 1998. Responses were received from 77 investment company complexes between March 16 and June 3, 1998, and represent 66.0 percent of industry assets. Two of these firms did not provide a response to the question on completion date.

The ICI has also urged its members to participate in the SIA's industry-wide testing program, and several major investment company complexes will participate in the initial round of testing that begins this month.

II. INTERNATIONAL YEAR 2000 EFFORTS

The global nature of securities trading presents one of the most difficult Year 2000 challenges. Considerable work on Year 2000 compliance remains to be done in countries throughout the world.

The Commission is actively encouraging financial regulators in other countries to address the Year 2000 problem. In October 1997, Chairman Levitt spoke to the International Federation of Securities Exchanges to encourage it to take an active role in promoting remediation and contingency planning by its member exchanges.

In addition, the Commission works within the International Organization of Securities Commissions (IOSCO) to raise international awareness of Year 2000 issues. In 1997, IOSCO issued two communiqués urging its members and market participants to take appropriate action to address Year 2000 issues. Soon after, in early 1998, IOSCO conducted a survey of its members regarding Year 2000 compliance, and is currently conducting a second survey, focusing on testing and contingency planning. The Commission expects IOSCO to publish the survey results at its meeting this September.⁹

Other international groups are also working to address the Year 2000 problem. In September 1997, the Basle Committee on Banking Supervision¹⁰ issued a technical paper for banks that sets forth a strategic approach for the development, testing, and implementation of Year 2000 solutions. It also discusses the role that central banks and bank supervisors need to play in promoting awareness of the issue and enforcing action. In April 1998, the Basle Committee, IOSCO, the G-10 Committee on Payment and Settlement Systems (CPSS),¹¹ and the International Association of Insurance Supervisors (IAIS)¹² jointly sponsored a Roundtable on the Year 2000. Discussions at the Roundtable emphasized that private and public sector bodies should coordinate on a number of important issues and approaches, including: (1) strengthening and widening external testing programs; (2) improving information sharing among market participants and their vendors and service providers; (3) fostering increased disclosure by corporations of their Year 2000 testing and readiness results; and (4) reinforcing the role of oversight bodies such as supervisors and auditors.

The Roundtable sponsors also established the Joint Year 2000 Council, chaired by the Federal Reserve Bank of New York. The Joint Council's objectives include, among other things, serving as an information clearinghouse on Year 2000 issues, serving as a locus for international coordination of Year 2000 testing programs, and coordinating international contingency efforts. The Council will meet regularly and has agreed on a wide range of initiatives to draw attention to the Year 2000 problem.

⁹IOSCO continues to update the special Year 2000 section on its web site at <<http://www.iosco.org>>. This section includes information on the testing and readiness of the securities industry and markets worldwide.

¹⁰The Basle Committee was established by the central bank Governors of the Group of Ten countries in 1975. It consists of senior representatives of banking supervisory authorities and central banks from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.

¹¹The CPSS maintains a special section on the Bank for International Settlement's web site at <<http://www.bis.org>> that provides information on the testing plans and readiness status of payment and settlement systems worldwide.

¹²The IAIS is working with its members to urge insurance companies to implement detailed action plans to resolve the Year 2000 problems associated with their business activities.

The private sector is also undertaking initiatives to promote international Year 2000 compliance. The SIA, in conjunction with its International Operations Association, sent an "international scorecard" to over 700 foreign regulators, exchanges, banks, clearing organizations, and broker-dealers asking for information about their Year 2000 efforts. While the SIA is still collecting and analyzing data from the scorecard, one immediate result has been requests by foreign entities to participate in the SIA's testing program. The London Investment Bankers Association has agreed to take the lead in coordinating test efforts with the United Kingdom, while the Swiss Banking Corporation has agreed to act as coordinator in continental Europe.

In addition, a number of banks and investment firms have formed the Global Year 2000 Coordinating Group.¹³ The Coordinating Group plans to gather and disseminate information on the Year 2000 readiness of cash payment and settlement systems, securities clearance and custody systems, exchanges, and foreign exchange and derivatives trading firms. It is also planning a series of regional meetings with regulators and industry participants in Asia, Latin America, and Europe. Membership in the Coordinating Group is open to all interested financial services providers.

Despite these efforts, international Year 2000 compliance remains an area of concern for the Commission. The Commission plans to continue working actively with regulators in other countries and with international working groups to address Year 2000 concerns. In addition, it will continue to urge U.S. firms to press their international counterparties for a more responsive approach abroad. Nevertheless, risks from Year 2000 non-compliance abroad must be a major focus of contingency planning for U.S. firms.

III. ISSUER DISCLOSURE

The Commission staff has advised public companies and investment companies that they must disclose any material effects that the Year 2000 problem or their own Year 2000 remediation efforts will have on their businesses. To date, the staff has published a legal bulletin on issuers' disclosure obligations, and has surveyed the quantity and quality of the disclosure made by public issuers and investment companies.¹⁴ Although the number of issuers discussing Year 2000 has increased significantly, the staff is concerned that much of the disclosure is not informative.

A. Staff legal bulletin No. 5

The Commission's disclosure framework requires that public companies and investment companies disclose material information about themselves to the public. This enables investors to make informed investment decisions. Although the Commission's disclosure framework requires companies to provide specific categories of information, it is flexible enough to enable companies to tailor disclosure to their particular circumstances. Generally, the Commission relies on this general framework and does not provide specific guidance on any particular issue. However, the Commission staff felt the Year 2000 issue merited an exception and provided specific guidance as to what public companies should consider when disclosing information about their Year 2000 readiness.

On October 8, 1997, the Divisions of Corporation Finance and Investment Management issued a joint Staff Legal Bulletin reminding those entities with disclosure obligations that the Commission's rules and regulations apply to Year 2000 issues, like any other significant issue.¹⁵ On January 12, 1998, the Divisions revised the Staff Legal Bulletin to provide more specific guidance under existing Commission rules and regulations.¹⁶ The staff intended this guidance to alleviate the uncertainty expressed by some members of the accounting and legal professions regarding what a company should disclose about its Year 2000 issues.¹⁷

¹³The Coordinating Group is currently comprised of representatives from 73 financial institutions in 19 countries: Argentina, Australia, Brazil, Canada, China, Denmark, France, Germany, Hong Kong, Italy, Japan, Mexico, the Netherlands, Singapore, South Korea, Spain, Switzerland, the United Kingdom and the United States.

¹⁴For detailed results of the survey of public issuers, see Staff of the United States Securities and Exchange Commission, Year 2000 Disclosure Task Force Survey (June 1998). A copy of the survey is available on the Commission's web site at <<http://www.sec.gov>>.

¹⁵A staff legal bulletin represents the staff's views only and is not a rule, regulation, or statement of the Commission.

¹⁶Revised Staff Legal Bulletin No. 5 supersedes the original bulletin and is located on the SEC's web site at <<http://www.sec.gov/rules/othrindx.htm>>.

¹⁷In addition, Senate Financial Services and Technology Subcommittee Chairman Robert Bennett has introduced legislation, the Year 2000 Computer Remediation and Shareholder Protec-

Continued

For corporate issuers, the revised Staff Legal Bulletin explains that public companies may have a Year 2000 disclosure obligation in their Commission filings because an applicable form or report requires the disclosure. The regulation most likely to trigger disclosure on a Commission form or report is "Management's Discussion and Analysis of Financial Condition and Results of Operations," or "MD&A."¹⁸ In their MD&A, companies must discuss known trends, demands, commitments, events, or uncertainties that are likely to have a material impact on them.

In the revised Staff Legal Bulletin, the staff described three circumstances under which a company should consider its Year 2000 issues to be material.¹⁹ The first is if the company has not yet started to assess its Year 2000 issues. The second is if the company has started to assess its Year 2000 issues, but has not yet determined whether these issues are material. The third is if, after assessing its Year 2000 issues, the company has determined that these issues could be material to its business, operations, or financial condition, irrespective of any remediation plans or insurance coverage. In other words, the company must have determined the materiality of its Year 2000 issues on a "gross" basis.

Once a company has determined that its Year 2000 issues are material, the revised Staff Legal Bulletin provides specific guidance on what type of information to disclose. The staff expects a company to disclose, at a minimum, its plans to address the Year 2000 issues that affect its business and operations, and its timetable for carrying out these plans. When material, the staff also expects a company to disclose (1) an estimate of its Year 2000 costs and any material impact it expects these costs to have on its operations, liquidity, and capital; (2) its historical Year 2000 costs;²⁰ and (3) how the company could be affected if its customers, suppliers, and other constituents are not Year 2000 ready. Boilerplate disclosure is discouraged.

Investment companies are also obligated to assess whether Year 2000 disclosure is required, including whether such disclosure is needed in registration statements. The Staff Legal Bulletin states that under the Investment Advisers Act of 1940 and the Investment Company Act of 1940, investment advisers and investment companies may be required to make appropriate disclosure to clients and shareholders if operational or financial obstacles are presented by the Year 2000. Further, Section 34(b) of the Investment Company Act prohibits investment companies from omitting any fact that is necessary to prevent the statements made in public filings from being materially misleading. Specifically, investment companies are required by Item 5 "Management's Discussion of Fund Performance" of Form N-1A to describe in their registration statements the experience of their investment advisers and the services that the advisers provide. In response to this Item, investment companies may need to disclose the effect that the Year 2000 issue would have on their advisers' ability to provide services described in their registration statements.

B. Public company disclosure

After the Staff Legal Bulletin was revised, the Division of Corporation Finance created a Year 2000 Task Force to determine how many public companies are addressing the Year 2000 issue and to assess whether the disclosure being provided is meaningful. As part of this review, the Task Force attempted to determine if companies were following the guidance in the revised bulletin. As described below, the review revealed that many companies are not.

First, the Task Force searched the Commission's electronic filing system, EDGAR, to compare how many public companies have been providing Year 2000 disclosure at different points in time. These searches indicated that only 10 percent of the annual reports filed by public companies during the first four months of 1997 contained the phrase "Year 2000." For the quarterly reports filed after the staff published Staff Legal Bulletin No. 5, this percentage increased to 25 percent. After the staff published revised Staff Legal Bulletin No. 5 in January 1998, 70 percent of the annual reports contained the phrase "Year 2000."

While the number of companies disclosing Year 2000 issues had increased dramatically, the Task Force's survey showed that many companies were not following the specific guidance provided in revised Staff Legal Bulletin No. 5. The Task Force read the Year 2000 disclosure in the filings of 1,023 public companies to determine

tion Act of 1997 (S. 1518), which would require public companies to disclose their Year 2000 issues.

¹⁸ See Item 303 of Regulations S-K and S-B.

¹⁹ This guidance is not exclusive. Compliance with the Staff Legal Bulletin does not necessarily constitute compliance with the disclosure requirements of the federal securities laws. Companies have been advised that they need to consider these laws and the SEC's rules and regulations in addition to the bulletin.

²⁰ Revised Staff Legal Bulletin No. 5 did not request this disclosure. Rather, companies are required to make this type of disclosure in the "Results of Operations" section of MD&A.

whether the specific guidance provided in revised Staff Legal Bulletin No. 5 was being followed. To compile the 1,023 annual reports, the Task Force randomly selected companies from 12 industry groups, including 66 small business filers. The aim was to compile a sampling of filings that would fairly represent a cross-section of public companies. The Task Force also surveyed the most recent annual or quarterly reports filed by the Fortune 100 companies that are publicly held.²¹ Based on the specific guidance provided in revised Staff Legal Bulletin No. 5, the Task Force looked for information regarding the following seven categories:

- (1) The status of the company's assessment of its Year 2000 issues;
- (2) The level of detail in the disclosure relating to the company's remediation plan;
- (3) The estimated timetable for completing the company's assessment and/or its plan;
- (4) Whether the company intends to evaluate, or is evaluating, its Year 2000 issues with entities with whom it has material relationships;
- (5) Whether the company discloses how much has been spent on Year 2000 issues to date;
- (6) Whether the company discloses an estimate of the amount to be spent on Year 2000 issues; and
- (7) Whether the company addresses, and the level of materiality of, its Year 2000 issues.

Based on this survey, the Task Force found the following:

Assessment.—the extent to which the company has assessed the seriousness of its Year 2000 technology problems if no corrective action is taken.

<i>Assessment:</i>	<i>Percentage</i>
About to be started	9
Still in progress	56
Completed	27
No disclosure regarding assessment	8

Plan.—the extent to which the company described its plan to remedy its Year 2000 technology problems.

<i>Plan:</i>	<i>Percentage</i>
General description	44
Detailed description	9
Plan is fully implemented	4
No disclosure regarding plan	43

Timetable.—the time frame within which the company intends to complete its assessment and/or its remediation plan. The Task Force considered disclosure such as "in time" or "by the year 2000" as "No disclosure."

<i>Timetable:</i>	<i>Percentage</i>
By the end of 1998	19
Other than the end of 1998	17
No disclosure regarding timetable	64

Relationships.—whether the company plans to evaluate, or is evaluating, the Year 2000 technology problems of those entities with which it has material relationships.

<i>Relationships:</i>	<i>Percentage</i>
Disclosure regarding evaluation of material relationships	49
No disclosure regarding evaluation of material relationships	51

Historical costs.—the amount of money the company has already spent on Year 2000 issues to date.

<i>Historical costs:</i>	<i>Percentage</i>
Disclosure regarding historical costs	8
No disclosure regarding historical costs	92

Estimated costs.—the amount of money the company estimates it will spend on Year 2000 issues.

<i>Estimated costs:</i>	<i>Percentage</i>
Disclosure regarding estimated costs	22
No disclosure regarding estimated costs	78

Materiality.—whether the company disclosed that the Year 2000 issue is material to its business and, if so, the level of materiality.

<i>Materiality:</i>	<i>Percentage</i>
Year 2000 issues could be material	19
Year 2000 materiality is unknown at this time	5

²¹ Seven of the Fortune 100 companies are not publicly held.

<i>Materiality:</i>	<i>Percentage</i>
Year 2000 issues are not material as to remediation costs or operations	67
No disclosure regarding materiality of Year 2000 issues	19

The Commission and its staff continue their efforts to increase the frequency and quality of Year 2000 disclosure made by public companies. The efforts to date have made public companies more aware of this issue, but have not fully succeeded in obtaining the quality of disclosure that investors need. The Commission is concerned that while a larger number of companies mention Year 2000 in their annual reports, much of the disclosure is not meaningful.

The Commission therefore has begun to take several steps to improve the quality of issuer disclosure. First, in the near future, Chairman Arthur Levitt plans to write to chief executive officers of public companies to remind them of the significance of the Year 2000 issue and the Commission's guidance regarding companies' Year 2000 disclosure obligations.

Second, as noted by Commissioner Unger in her testimony of June 10, 1998 before the Senate Subcommittee on Financial Services and Technology, the Commission is planning to issue an interpretive release in the near future setting forth its views regarding the application of its disclosure requirements to the Year 2000 issue. The interpretive release would formalize current staff guidance and, among other things, remedy the apparent misconception that Year 2000 issues must be disclosed only if the costs of remediation are material. The interpretive release will clarify that companies must, in addition to considering costs, determine materiality based on the potential consequences of inadequately resolving their Year 2000 issues. Further, the Commission's interpretive release may form the basis of Commission enforcement actions against companies that fail to disclose material information regarding their Year 2000 issues.

IV. CONCLUSION

The Commission has long recognized the importance of the Year 2000 problem. It affects nearly every aspect of the securities industry, including our own operations. We are working hard to ensure Year 2000 compliance in the securities industry, as well as within our own critical systems. We have pushed market participants—the SROs, broker-dealers, transfer agents, investment companies, investment advisers, and public companies—to address these important issues. In addition, the industry—through the efforts of the SIA—has stepped forward and constructed an aggressive program of education and testing for the markets and market participants.

The Commission appreciates the opportunity to discuss the readiness of the U.S. securities industry and public companies to meet the information processing challenges of the Year 2000. The Commission and its staff welcome any questions on these issues that the Committee may have.

PREPARED STATEMENT OF PETER A. MILLER

INTRODUCTION

Mr. Chairman and members of the committee, thank you for the opportunity to address this important issue. My name is Peter Miller. I am the chief information officer of J.P. Morgan and have been involved with the Year 2000 problem since 1995. My remarks today will focus on the nature of the Year 2000 problem, a risk-management approach to solving it, and the need for industry-to-industry collaboration, as well as international cooperation.

I: THE PROBLEM

Let me begin by saying that the Year 2000 problem, or the "millennium bug" as it is sometimes referred to, is an issue that we at J.P. Morgan consider of paramount importance to our firm, the financial services industry, and the United States and world economies. No other event in history will so thoroughly expose the vulnerability of our living and working in a world so interconnected by computers and telecommunications.

The problem as we see it, is not really a technological one, although technology lies at the root of both the problem and solution. Correcting the two-digit dating systems, which in their present form can not tell one century from the next, is easy. Rewriting code, as a technological matter, is relatively straightforward. The real problem and the real danger can be summed up in two words: logistics and dependency.

The logistical problem is that millions of computers are involved. A huge undertaking in and of itself. Making the task even more daunting are the intricate, complex, and pervasive interdependencies among the computers and computer networks that populate the world today. It is not enough that every computer, software application, and embedded chip affected by the Year 2000 problem be fixed. They must be fixed in ways so that they remain compatible with all the other devices with which they interoperate.

The financial industry offers a perfect illustration of the enormous size, scope, and complexity of the problem. Finance today is a global business, where almost unimaginable sums of money are in a constant state of electronic flux, and interdependency is particularly acute given the networked nature of market participants. We have already seen harbingers of what may be in store. The New York Mercantile Exchange and the Brussels Stock Exchange have both experienced date-related operating failures. Although these problems were relatively small in scope, the scale of the issue becomes magnified when you consider that all of the world's financial institutions will find themselves tested on the same day. At the extreme, the price of failure could be systemic breakdown.

Yet it is not enough for the world's banks, stock exchanges, and clearing houses to have their respective houses in order. It won't do them any good if their transaction processing systems are ready, but they cannot relay information to clients, creditors, regulators, and payment and settlement systems because of breakdowns in telecommunications networks. And imagine if all the banks and telecommunications companies are set to perform on January 3, 2000, but their employees can't get to their desks because the elevators don't work. Simply put, our networked world is only as good as its weakest connection.

Typically, the barriers to Year 2000 compliance come down to four things:

- Time—this is a problem with an immovable deadline
- Money—for some, compliance may not be economically possible
- Skills—even if you have the money, you still need to find people who can fix the problem
- Competing priorities—if focus is on other issues, the likelihood increases that Year 2000 problems simply won't get fixed. Major corporate events like mergers, acquisitions, and privatizations are the kinds of things that can keep managers from devoting the time necessary to address Year 2000 issues within their companies.

II: J.P. MORGAN'S RISK-MANAGEMENT APPROACH

So how does one combat such an enormous and insidious problem? At J.P. Morgan we have applied a comprehensive, risk-management approach. In our measured opinion, things will go wrong. Statistical probability tells us that the logistics and dependencies involved almost certainly dictate some level of failure. So the question is not if things will go wrong, but how many things will go wrong. Therefore, we believe that the best course of action, and probably the only workable one given time, cost, and skill constraints, is to identify the most critical situations, fix them first, and then move down the chain of priorities. Firms that will do the best will be the ones that:

- put their own house in order,
- coordinate their activities with their trading partners, and
- prepare contingency plans in the event that unexpected failures occur.

At J.P. Morgan, we began discussing the Year 2000 problem at senior executive levels in 1995. Early the following year, with the full commitment of Sandy Warner, our chairman and CEO, we launched a firmwide initiative. The commitment of senior management was crucial, for without it, we would never have been able to muster all the resources necessary to attack the problem. With 600 people working on the initiative at its peak, we have estimated that the total cost of making the firm Year 2000 compliant is \$250 million.

Paula Larkin, a senior manager at Morgan, is charged with overseeing and coordinating all of the firm's Year 2000 efforts. To date, these efforts have included:

- raising awareness throughout the firm,
- conducting a comprehensive analysis of the problem and its many impacts,
- putting in place a complete end-to-end methodology and certification process, and
- applying the lessons learned broadly across the firm so as to reduce costs and risks while accelerating progress.

By year's end, we expect to have all of our critical applications and products tested and certified as Year 2000 compliant.

The importance of testing cannot be overstated. Our remediation efforts have shown the problem to be pervasive and not always obvious. For example, our testing of one product, which the manufacturer said was Year 2000 compliant, found that while the product could handle the changeover on January 1, it had not been programmed for the fact that 2000 is a leap year. The lesson here is that nothing can be taken on face value.

III: FINANCIAL SERVICES INDUSTRY ACTIVITIES

With our internal testing and renovation well under way, much of our effort is currently focused on addressing external dependencies, both inside and outside the financial services industry. This has involved identifying and assessing our Year 2000 exposures as posed by clients, counterparties, exchanges, depositories, clearinghouses, and correspondent banks, as well as by power, telecommunications, and other utilities.

Key to this effort has been coordination and collaboration with others in the industry, namely competitors, exchanges, the Federal Reserve, and trade associations. For example, J.P. Morgan has been working with the Securities Industry Association, the New York Clearinghouse, and others for the past 2 years on the Year 2000 issue. Through various committees, the SIA has been promoting awareness, developing testing guidelines, and coordinating industry-wide testing efforts. J.P. Morgan and 28 other securities firms are currently engaged in piloting the tests that will be used early next year to check industry-wide dependencies and compliance.

The work of SIA and other organizations like it have helped place the U.S. financial services industry into a leadership position in terms of Year 2000 readiness. The U.S. financial services industry is ahead of its peers abroad and also appears to be ahead of all other industries. To the best of my knowledge, financial services is the only industry conducting integrated testing to demonstrate readiness and identify issues ahead of time.

But for financial services companies, the need for vigilance must extend beyond their own industry. The ripple effect from a large disruption in another industry, such as telecommunications, transportation, or power, could have severe consequences for the financial sector. As a result, J.P. Morgan, on its own and in conjunction with industry efforts, is actively trying to understand the risks faced by its service providers and the programs they have put in place to mitigate the risks.

To mitigate these risks, the free-flow of timely and accurate information is essential. This means the Year 2000 cannot be treated as a competitive issue. Traditional barriers must make way for the sharing of best practices. Through collaborative efforts, firms can leverage resources and minimize costs. The government can play a key role here, through influence and legislation, to promote cooperation and information sharing across industries.

We also strongly support two parallel government efforts. Year 2000 disclosure requirements put in place by the Securities and Exchange Commission and the decision by the Federal Financial Institutions Examination Council to ask companies to prioritize their clients in terms of Year 2000 risks. For its part, J.P. Morgan already views Year 2000 readiness as a factor in conducting due diligence reviews of clients.

IV: INTERNATIONAL COORDINATION

This cooperation and collaboration also needs to extend beyond the borders of the United States. For J.P. Morgan, with operations in more than 30 countries, the need for global attention to the Year 2000 problem is clear. Currently, we are working actively with our counterparts and regulators outside the United States to increase awareness and action. The ultimate goal is to demonstrate industry readiness through integrated testing with all major market participants in all major market locations. Progress is being made, but much more work remains to be done.

Dependencies with potential cross-border implications are of particular concern in the international arena. Disruption in a key market could prevent the settlement of trades or movement of cash and securities, which in turn could squeeze credit and liquidity. Were a major international investment bank, for example, to find itself in a position where it could not deliver or receive cash or securities, the consequences could have a ripple effect on the world economy. Through our scenario planning activities, we are attempting to estimate the likelihood of these failures and identify appropriate remedies.

Our assessment of global readiness places the United States ahead of all other countries. Preparedness in Europe varies country by country. Thanks in large part to the work of the British Bankers Association, the United Kingdom ranks in the

top spot. Trade associations are active across the continent, but the entire Year 2000 effort has been hurt by the time, energy, and attention being devoted to the implementation of European Monetary Union.

Asia ranks behind Europe. Here the biggest threat is posed by the downturn in the regional economy. Strong progress, however, has been made in Japan over the last six months, due in large measure to the efforts of the Japan Securities Dealers Association working with the Ministry of Finance. Regulators are now actively reviewing firms' programs, and coordinated industry testing is planned.

Action has generally been lagging in Latin America, however, variations exist within the region. Mexico is proving to be a leader. Currently, the SIA is making use of work done in the United States to provide best practices to other locations. The SIA recently visited the major market locations in Latin America to meet with regulators and major market participants in an effort to leverage the financial services industries program here.

In all these regions, as is the case in the United States, the challenge extends beyond the financial services industry to all of the external dependencies. Although awareness has increased abroad, not all industries have demonstrated a recognition of the full scope and ramifications of the issue. This includes infrastructure providers, such as electric utilities and telecommunications companies, which are vital for the conduct of international trade.

On a global front, a recent positive development has been the birth of the Global Year 2000 Coordinating Group. The group raises awareness, identifies resources, and coordinates initiatives on an international basis. Currently, 20 countries are represented—a number that is expected to rise. Members of the group are responsible for taking leadership roles on Year 2000 initiatives within their respective countries, and the dialogue among members provides first-hand status reports on each country's problems, progress, and prognosis. One initiative undertaken by the group is to develop tools to aid international testing by providing a standard set of definitions and recommendations on scope and timing. To date, three meetings have been held with attendance covering most major financial markets. In addition, the Basle Committee and other international regulatory groups have created the Joint Year 2000 Council to focus the supervisory community on the issue.

V: CONCLUSION

To close, I would like to reiterate a couple of key messages. The problem is serious. Things will go wrong. And, the companies, industries, governments, countries, and regions that will be most successful in addressing the problem will be the ones that:

- get a firm handle on internal issues that are particular to them,
- address the critical external dependencies that affect them,
- work collaboratively with others to share information and maximize resources, and
- put in place contingency plans that guard, as much as possible, against unforeseen events.

Addressing this problem will take hard work, and for the most part, it's a thankless task. Success will be defined not by some great discovery, but by minimal disruption. The financial services industry has made considerable progress to date and is well positioned. However, the test in all this lies in the strength of the weakest link, wherever it may be.

I thank the Committee for the opportunity to share my thoughts and look forward to working with it and others to bring this issue to the most uneventful conclusion possible.

PREPARED STATEMENT OF ERNEST T. PATRIKIS

I am pleased to appear before the Committee today to discuss the progress of foreign financial markets in addressing the Year 2000 computer problem. I am appearing in my capacity as chairman of the Joint Year 2000 Council, which is sponsored jointly by the Basle Committee on Banking Supervision, the G-10 central bank governors' Committee on Payment and Settlement Systems, the International Association of Insurance Supervisors, and the International Organization of Securities Commissions (collectively referred to as the "Sponsoring Organizations").

The international financial community has much work to do to prepare itself for the challenges posed by the Year 2000 ("Y2K") problem. While much good work is being done and progress in many areas is evident, more needs doing. The Sponsoring Organizations believe that mutual cooperation and information sharing can play

a key role in helping individual market participants carry out these preparations and limit the scope of Y2K-related disruptions. Our major concern, of course, will be the possible impact of the Y2K problem on the functioning of the international financial system as a whole.

Federal Reserve Governor Edward W. Kelley, Jr. has recently elaborated on the activities of the Federal Reserve System in connection with the Y2K problem, as well on possible macroeconomic implications.¹ I will not attempt to cover those topics again here. Instead, this morning I will begin with some background on the possible implications of the Y2K problem for international banking and finance. Second, I will describe how various supervisory initiatives led to the formation of the Joint Year 2000 Council a little more than two months ago. Third, I will discuss the actions being taken by the Joint Year 2000 Council, particularly in the areas of raising awareness, improving preparedness, and contingency planning.

BACKGROUND ON THE INTERNATIONAL IMPLICATIONS OF THE Y2K PROBLEM

The Y2K bug potentially affects all organizations that are dependent on computer software applications or on embedded computer chips. In other words, nearly all financial organizations worldwide are potentially at risk. Even those whose own operations remain strictly paper-based are likely to be dependent on power, water, and telecommunications utilities which must themselves address possible Y2K problems. Also, many non-financial customers have dependencies on technology.

All countries of the world, therefore, need to address the Y2K problem and its potential effects on their domestic financial markets. In some cases, it is said that computer systems in particular countries are not much affected because their national calendars are not based on the conventional Gregorian calendar used in the United States and many other countries. I do not derive much comfort from these statements because in most cases operating systems and the software applications running on them count internally with a conventional date system that may not be Y2K-compliant. These systems typically also need to connect and interact with other systems that use conventional dates, so these interfaces must be tested for Y2K-compliance. More broadly, mere assertions that computer applications are unaffected cannot be seen as a substitute for the rigorous assessment, remediation, and testing efforts that should be undertaken by financial market participants worldwide.

The increasing extent of cross-border, financial-market activity has been much remarked on in recent years. Perhaps less well known is the fact that this activity is dependent on a large, geographically diverse, and highly computer-intensive global infrastructure for each of the key phases of this activity—from trade execution through to payment and settlement.

As an example, consider the daily financial market activities of a hypothetical U.S.-based mutual fund holding stocks and bonds in a number of foreign jurisdictions. Such a mutual fund would likely execute trades via relationships with a set of securities dealers, who themselves might make use of other securities brokers and dealers, including some outside the United States. The operational integrity of the major securities dealers in each national securities market is critical to the smooth functioning of those markets. In addition, securities trading in most countries is reliant on the proper functioning of the respective exchanges, brokerage networks, or electronic trading systems and the national telecommunications infrastructure on which these all depend. Financial markets today are also highly dependent on the availability of real-time price and trade quotations provided by financial information services.

For record-keeping, administration, and trade settlement purposes, our hypothetical mutual fund would also likely maintain a relationship with one or more global custodians (banks or brokerage firms), who themselves would typically maintain relationships with a network of sub-custodians located in various domestic markets around the world. Actual settlement of securities transactions typically occurs over the books of a domestic securities depository, such as the Depository Trust Company ("DTC") or the Fedwire National Book-Entry System in the United States, or at one of the two major international securities depositories, Euroclear and Cedel. Additional clearing firms, such as the National Securities Clearing Corporation ("NSCC") and the Government Securities Clearing Corporation ("GSCC") in the United States, may also occupy central roles in the trade clearance and settlement process.

¹ See testimony of Governor Edward W. Kelley, Jr. before the Committee on Commerce, Science, and Transportation, U.S. Senate, April 28, 1998.

Payments and foreign exchange transactions on behalf of the mutual fund would involve the use of correspondent banks, both for the U.S. dollar and for other relevant currencies. These transactions would typically settle over the books of domestic wholesale payment systems, such as the Clearing House Interbank Payments System ("CHIPS") or Fedwire in the United States, and the new TARGET system for the euro. Correspondent banks are also heavily dependent on the use of cross-border payments messaging through the network maintained by the Society for Worldwide Interbank Financial Telecommunications ("S.W.I.F.T.") to advise and confirm payments. To provide some sense of the magnitudes involved here, consider that the Fedwire and CHIPS systems process a combined \$3 trillion in funds transfers on an average day (split roughly evenly between the two systems). While S.W.I.F.T. itself does not transfer funds, its messaging network carries over three million messages per day relating to financial transactions worldwide.

The many interconnections of the global financial market infrastructure imply that financial market participants in the United States could be affected by Y2K-related disruptions in other financial markets. In assessing the scope of any such potential problems, we should be realistic in accepting that some disruptions are inevitable, while also recognizing that not all countries confront Y2K problems of similar magnitudes. The problem simply affects too many organizations and too many systems to expect that 100 percent readiness will be achieved throughout the world. Nor are the best efforts of supervisors and regulators capable of completely eradicating the risk of disruption. Ultimately, the work of fixing the Y2K problem rests with firms themselves, and even some of the most determined and well-funded Year 2000 efforts may miss something.

GLOBAL YEAR 2000 ROUND TABLE

Recognizing the global nature of the issues surrounding the Y2K problem, each of the Sponsoring Organizations undertook initiatives in 1997 to raise awareness, enhance disclosure, and prompt appropriate action within the financial industry. Their decision last fall to organize a Global Year 2000 Round Table was motivated by a growing sense of the seriousness of the Y2K challenges posed in many countries and of the potentially severe consequences for financial markets that fail to meet these challenges. The Global Year 2000 Round Table was held at the Bank for International Settlements on April 8, 1998. It was attended by more than 200 senior executives from 52 countries, representing a variety of private and public organizations in the financial, information technology, telecommunications, and business communities around the world.²

The discussions at the Round Table confirmed that the Y2K issue must be a top priority for directors and senior management, and that the public and private sectors should increase efforts to share information. The importance of thorough testing, both internally and with counterparties, was emphasized as the most effective way to ensure that Y2K problems are minimized. Round Table participants identified the need to continue the widening and strengthening of external testing programs in many countries.

The communiqué issued by the four Sponsoring Organizations at the close of the Round Table recommended that market participants from regions that have not yet vigorously tackled the problem should consider the need to invest significant resources in the short time that remains. The Sponsoring Organizations further recommended that external testing programs be developed and expanded and that all financial market supervisors worldwide should implement programs that enable them to assess the Y2K readiness of the firms and market infrastructures that they supervise. The Sponsoring Organizations urged telecommunications and electricity providers to share information on the state of their own preparations and encouraged market participants and supervisors and regulators to consider the need to develop appropriate contingency procedures.

At the Round Table, a new private-sector initiative known as the Global 2000 Coordinating Group was announced. The aims of the Global 2000 effort are to identify and support coordinated initiatives by the global financial community to improve the Y2K readiness of financial markets worldwide. For example, current Global 2000 projects include the development of recommendations for financial infrastruc-

² A videotape containing highlights of the Global Year 2000 Round Table is available free of charge from the Bank for International Settlements. Please contact the Joint Year 2000 Council Secretariat at the Bank for International Settlements, Centralbahnplatz 2, CH-4002 Basle, Switzerland. (telephone: 41 61 2808432, fax: 41 61 280 9100, email: jy2kcouncil.bis.org)

The Federal Financial Institutions Examinations Council ("FFIEC") has also placed the entirety of this video tape on its web site, where it is available for downloading in whole or in part. Please see <http://www.bog.frb.fed.us/y2k/video—index.htm#19980408>.

ture testing and guidelines for addressing Y2K compliance issues related to vendors and service providers. The Global 2000 Coordinating Group, which includes representatives from over 75 financial institutions in 18 countries, represents an extremely valuable private-sector attempt at cooperation on this important issue. At the same time, however, the international financial supervisory community recognized that it would be useful to establish a public-sector group, called the Joint Year 2000 Council, that would work with the private sector and also maintain a high level of attention on the Y2K problem among financial market supervisors and regulators worldwide.

JOINT YEAR 2000 COUNCIL

The formation of the Joint Year 2000 Council was announced at the end of the Global Year 2000 Round Table on April 8, 1998. The Joint Year 2000 Council consists of senior members of the four Sponsoring Organizations. Every continent is represented by at least one member on the Council. The Secretariat of the Council is provided by the Bank for International Settlements. I am honored to serve as the chairman of the Joint Year 2000 Council.

The mission of the Joint Year 2000 Council has four parts: First, to ensure a high level of attention on the Y2K computer challenge within the global financial supervisory community; second, to share information on regulatory and supervisory strategies and approaches; third, to discuss possible contingency measures; and fourth, to serve as a point of contact with national and international private-sector initiatives. After their meetings on May 8–9, 1998, the G–7 finance ministers called on the Joint Year 2000 Council and its Sponsoring Organizations to monitor the Y2K-related work in the financial industry worldwide and to take all possible steps to encourage readiness.

The Council has met twice since being formed in early April and plans to meet frequently, almost monthly, between now and January, 2000. At our first meeting, we organized our work projects and approved our mission statement. At our second meeting, we met for the first time with an External Consultative Committee consisting of international public-sector and private-sector organizations. Meeting with this External Consultative Committee is intended to enhance the degree of information sharing and the raising of awareness on different aspects of the Year 2000 problem by both public and private sectors within the global financial markets.

The External Consultative Committee includes representatives from international payment and settlement mechanisms (such as S.W.I.F.T., Euroclear, Cedel, and VISA), from international financial market associations (such as the International Swaps and Derivatives Association, the International Institute of Finance, and the Global 2000 Coordinating Group), from multilateral organizations (such as the IMF, OECD, and World Bank), from the financial rating agencies (such as Moody's and Standard & Poor's), and from a number of other international organizations (such as the International Telecommunications Union, Reuters, the International Federation of Accountants, and the International Chamber of Commerce). This diversity of perspectives led to an extremely valuable discussion with the Joint Year 2000 Council and stimulated work on several projects to be taken forward with input from both the public and private sectors, for example, the initiatives on Y2K testing and self-assessment that I will describe shortly. Further sessions with the External Consultative Committee are planned on a quarterly basis.

It is important at the outset for me to be clear that the Joint Year 2000 Council is not intended to become a global Y2K regulatory authority, with sweeping powers to coordinate international action or to take responsibility for ensuring Y2K readiness in every financial market worldwide. Through our ability to serve as a clearing-house for Y2K information, however, I believe that the Joint Year 2000 Council will play a positive role in three areas: (1) raising awareness, (2) improving preparedness, and (3) contingency planning. In the next portion of my remarks, I would like to address each of these roles in turn.

EFFORTS TO PROMOTE AWARENESS

The Joint Year 2000 Council is undertaking a series of initiatives that may be described under the heading of promoting awareness. By this term, I do not mean to include only those initiatives aimed at raising general awareness, although that too is still needed in some cases. I mean to include efforts to promote better awareness of the many efforts currently under way to tackle the Y2K problem. I have found that, while many organizations are working hard on various aspects of the Y2K challenge, in many cases these efforts would be enhanced by a greater degree of information sharing with others. For example, at the Federal Reserve Bank of New York, we have been holding quarterly Y2K forums with a diverse set of finan-

cial organizations in the area. Participants have requested that we continue to hold these meetings—in fact, to hold them even more frequently—because they believe that the contacts and the exchange of views are broadly beneficial. We hope to use the Joint Year 2000 Council to achieve similar goals.

Each of the members of the Joint Year 2000 Council has committed to help play a leading role in promoting awareness of Y2K initiatives within their region. Each of us will help in coordinating regional Y2K forums or conferences and will publicly promote the goals of the Joint Year 2000 Council in speeches and on conference programs.

The Joint Year 2000 Council will also maintain extensive world-wide-web pages that can be accessed freely over the Internet.³ These pages are being maintained through the support the Council has received from the Bank for International Settlements, in particular from the General Manager, Andrew Crockett. These web pages will maintain current information on the activities of the Joint Year 2000 Council.

The most extensive aspect of the Council's web site will be a series of country pages, one for each country in the world. For each country, the page will contain contact information for government entities (including national coordinators), financial industry supervisors and regulators (including central banks, banking supervisors, insurance supervisors, and securities regulators), financial industry associations, payment, settlement and trading systems, chambers of commerce, and major utility associations or supervisors. For each of these organizations, a name, address, phone number, fax number, electronic mail and web site address will be provided. Other relevant information on an organization's Y2K preparations may also be included, for example, whether it has a dedicated Y2K contact or has taken specific action with respect to the Y2K problem.

The motivation for developing these country pages is to increase awareness of the work that is being done to address the Y2K problem and to enable market participants to easily find out more information about the state of preparations worldwide. Establishing these national contacts will also help to develop the informal networks and arrangements that may be needed in addressing other Y2K-related issues, for example, in formulating contingency measures. Finally, of course, the presence of the country pages may exert pressure on those countries where more vigorous action is needed. A blank or uninformative country listing would probably not be seen as a good sign by some financial market participants.

In addition, the web pages of the Joint Year 2000 Council will also provide summaries of the efforts being undertaken by its Sponsoring Organizations as well as links to the relevant web sites. For example, reports on Y2K surveys of supervisors and regulators being undertaken by the Basle Committee on Banking Supervision and by the International Organization of Securities Commissions are planned to be made available on the Joint Year 2000 Council web site. Public papers produced by the Joint Year 2000 Council will also be available on the web site. A listing of international conferences and seminars related to Y2K will be posted on the web site, together with links to other Y2K web sites and documents.

At this stage, each member of the Joint Year 2000 Council is in the process of finalizing the country page for its respective country. I recently wrote to every contact provided by the four Sponsoring Organizations (almost 600 contacts in over 170 countries), asking for assistance in coordinating the development of their country page. This also provided a further opportunity to raise the awareness of the Year 2000 problem at the most senior levels of financial market authorities and supervisors in countries around the world. Through the effort to develop this web site and other similar efforts by the Joint Year 2000 Council, I believe we can succeed at keeping the awareness of the issue at a very high level within the global financial supervisory community.

EFFORTS TO IMPROVE PREPAREDNESS

Of course, awareness of the Year 2000 problem is only the first step in addressing it. Global efforts to prepare for Year 2000 vary widely, and many countries believe that more coordinated national action will be necessary to tackle the problem as effectively as possible. At our second meeting of the Joint Year 2000 Council, a strong consensus emerged that a national government body in each country could play a helpful role in coordinating preparations for Y2K. While the Council did not have a strong view on what particular form or what specific authority such a body would

³The web pages of the Joint Year 2000 Council can be reached at the web site of the Bank for International Settlements (www.bis.org). These pages will also be registered under the name jy2kcouncil.org in the near future.

require in each specific country, the Council members felt strongly that involvement in some fashion by the national government could be beneficial.

Accordingly, the Joint Year 2000 Council plans to issue a statement in the near future providing general support for the concept of a national-level coordinating body for the Y2K problem. In the United States, of course, the White House has established the President's Council on Year 2000 Conversion, headed by John Koskinen. This effort, as well as those of this committee under the leadership of Chairman Bennett, and of the other Congressional committees that have addressed the Y2K problem, has shown that national government bodies have a very important and useful role to play in encouraging progress in addressing the Y2K problem.

Turning now to the question of how financial supervisors can implement effective Y2K programs, the Joint Year 2000 Council intends to promote the sharing of strategies and approaches. For example, the Basle Committee on Banking Supervision has prepared a paper containing "Supervisory Guidance on Independent Assessment of Bank Year 2000 Preparations". This document is aimed at moving supervisors worldwide from a level of general awareness to a specific, concrete program of action for overseeing Y2K preparations, both on an individual bank basis and on a system-wide basis.

The Joint Year 2000 Council intends to adapt this paper for use by financial market regulators and supervisors more broadly and to issue it as rapidly as possible with the endorsement of all four Sponsoring Organizations. The goal will be to provide guidance in developing specific Year 2000 action plans for all types of financial market authorities. Supervisors in countries that have gotten a head start on the issue can thereby provide the benefit of their experience to those who are starting later. Those supervisors getting a late start have a need for tools of this type.

The Joint Year 2000 Council will also be working with the members of our External Consultative Committee, particularly the Global 2000 Coordinating Group, to build on this effort and develop a Y2K self-assessment tool that could be used broadly by the financial industry in countries around the world. We also intend to develop additional papers on a variety of Y2K topics that might be of interest to the global financial supervisory community.

At this point, I am sure that members of the Committee have questions regarding the state of Y2K preparations in various parts of the world. I think that it is fair to say that most believe a spectrum exists, with the United States at one end of the spectrum, and emerging market and undeveloped countries at the other end. There are likely exceptions of course; some developed countries are probably less far along than they should be. Some emerging market countries, on the other hand, appear to be quite advanced in their preparations.

Overall, however, there is still not nearly enough concrete, comparable information on the preparations of individual institutions to be able to make any confident statements about the state of global preparations in any detail. Over the time remaining until January 2000, we hope to use the Joint Year 2000 Council as a means of gathering a better picture of the state of global preparations, and to help direct resources and attention to those regions that appear to be faltering in their efforts. We will use the information provided for our web site and the discussions with members of our External Consultative Committee as our primary resources in seeking to identify "hot spots" where more urgent efforts are needed.

If we identify regions where more needs to be done, our first step will be to work through the relevant national financial supervisors and regulators to increase the urgency of efforts in their jurisdiction. We may also involve multilateral institutions, such as the World Bank, to help increase national attention on the issue. I do not believe that calling public attention to problems in specific countries would be a constructive step for us to take at this stage as we are still trying to build cooperation and our current information is incomplete. In this context, I would also point out that the market itself will begin to bring strong pressures to bear on specific firms and markets that exhibit signs of being ill-prepared during the course of 1999.

In conjunction with preparations for Y2K, the recent discussion of the Joint Year 2000 Council with the External Consultative Committee raised several important issues. First, in every national market there is the question of the dependence of the banking and financial sectors on core infrastructure such as telecommunications, power, water, sewer, and transportation. In all cases, it seems that it is not an everyday occurrence for representatives of these differing sectors to get together with financial sector representatives and discuss their mutual concerns. Yet, this must be made a priority if financial firms and their counterparties are to achieve comfort that their own efforts to prepare for Year 2000 will not be compromised by the failures of systems beyond their control.

A representative of the International Telecommunications Union is a member of our External Consultative Committee. At our meeting earlier this month, he pro-

vided useful factual information on the preparations being undertaken by telecommunications firms and indicated that a further global survey and report on this topic is due to be completed soon. This is the type of information sharing that helps all parties understand the scope of the problem, as well as the efforts that others are undertaking. We intend to encourage further information sharing between the financial sector and core infrastructure providers at future meetings of the Joint Year 2000 Council and the External Consultative Committee. I would also strongly encourage such mutual cooperation on Y2K preparations within each national jurisdiction.

Another issue that some participants in our Joint Year 2000 Council are concerned about in regard to preparations in their countries relates to the availability of human resources. In some regions, the supply of available information technology professionals may be hard-pressed to meet the challenges posed by Y2K. For each organization facing resource constraints, this situation clearly indicates the need to develop action plans for Y2K that set clear priorities among systems and projects.

More broadly, we must also recognize that the lack of available programming resources will be a significant overall constraint on the scale of Y2K remediation efforts globally. As a result, the cost of hiring computer professionals capable of addressing the problem will continue to rise. Wealthy countries are undoubtedly in a better position to bear these increasing costs than are poor countries.

A number of participants from our External Consultative Committee cited the recent grant of £10 million sterling by the British Government to the World Bank as a positive development. Among other projects, the World Bank intends to use this grant to fund a variety of educational and awareness-raising events related to Y2K over the next several months. Given the potential consequences of a failure to prepare for Y2K, the World Bank indicated to the Joint Year 2000 Council that it intends to take on an aggressive role in promoting and assisting Y2K efforts in countries around the world. The Joint Year 2000 Council intends to work closely with the World Bank to enhance our mutual efforts on the Y2K problem.

The subject of appropriate Y2K disclosure was also discussed by members of the External Consultative Committee. Many of those present agreed that greater disclosures would be helpful. However, there was skepticism that a standardized disclosure format would be effective in eliciting meaningful information for a wide class of financial firms, given the complexity and variety of Y2K issues facing these firms worldwide. It was also noted that disclosure which relies primarily on a firm's own subjective assessments of its Y2K problems inevitably will suffer from an optimistic bias.

In addition, most Y2K efforts will not reach the serious testing phase until 1999. The purpose of the testing will be to uncover areas where additional work is required, so that the first round of tests can be expected to encounter problems. In this environment, it may be difficult for firms themselves to assess the true state of their Y2K preparations. Also, firms who believe they are going to be ready will be directed by legal counsel not to make too strong a statement to avoid liability claims in case of unforeseen problems. On the other hand, firms that do not believe they can get ready in time will seek to avoid stating this clearly to protect their activities during 1999. For all of these reasons, I am doubtful that specific, reliable information on the state of Y2K preparations by individual firms worldwide will become publicly available.

Finally, in the area of improving preparedness, I have saved the most important topic for last—namely, testing. Testing programs, particularly external testing programs, are universally regarded as the most critical element of serious Y2K preparations in the financial sector. The Joint Year 2000 Council encourages all firms and institutions active in the financial markets to engage in internal and external testing of their important applications and interfaces. To this end, many major payment and settlement systems around the world have developed extensive testing programs and procedures for their participants. In the United States, for example, Fedwire, CHIPS, and S.W.I.F.T. have coordinated shared testing days for the purpose of testing the major international wholesale payments infrastructure for the U.S. dollar. The Securities Industry Association ("SIA") has been at the forefront of an ambitious program to develop a coordinated industry-wide test of all aspects of the trading and settlement infrastructure for the U.S. stock market. The FFIEC's efforts have also been extremely beneficial in stressing the importance of testing within the banking sector generally.

Yet, external testing programs globally need to be dramatically extended and expanded. To that end, the G-10 Committee on Payment and Settlement Systems last year started to collect information on the state of preparedness and testing of payment and settlement systems worldwide. To date, over 150 systems in 47 countries

have responded to the framework and posted such plans.⁴ The Joint Year 2000 Council intends to expand the coverage of this framework to exchanges and trading systems, as well as major financial information services providers, and hopes to expand the number of countries and systems that are included. We will also collate and present the information graphically to help highlight anomalies in testing schedules, and to facilitate the efforts of systems to coordinate test scheduling where feasible.

Primarily, I see this as an exercise in peer pressure. If we list every country in the world on our web site and the public can see that some countries have scheduled mandatory external tests of their major trading and settlement systems, while other countries do not provide any information, that second country may come under greater pressure to organize an external testing program. This is our stated goal. We will simply have blanks for those countries that do not respond to our requests for information.

Of course, if the Joint Year 2000 Council is going to encourage testing to such an extent, then it is only appropriate that we also help provide some tools for those countries trying to get a serious testing effort underway in a short amount of time. This is another of our high-priority projects. We will be working with members of the External Consultative Committee—including representatives of the Global 2000 Coordinating Group, S.W.I.F.T., and the World Bank—to rapidly develop a series of documents that help countries set up testing programs and overcome common obstacles. We intend to issue these documents broadly by the end of the summer, and some parts well before that.

In closing this section of my statement, I do not think it is possible to over-emphasize the importance of testing to help improve readiness. To illustrate this point, I would like to draw on our experiences with Fedwire, the Federal Reserve's wholesale interbank payments system. Much of the current Fedwire software application was written in the last five years, with the Y2K problem in mind. Nevertheless, some of the older software code that was carried over into the new application was not Y2K-compliant. Without the rigorous internal Y2K testing program that the Federal Reserve adopted, our Y2K remediation efforts might, therefore, have been incomplete. I think of this experience whenever I hear it said that some countries are immune to Y2K because they have only recently introduced information technology and that recent software programs are less affected by Y2K. I ask whether those programs have truly been thoroughly tested for Y2K compliance.

CONTINGENCY PLANNING EFFORTS

The third major role of the Joint Year 2000 Council will relate to contingency planning. In this context, I should note that contingency planning is something that most financial market authorities, particularly central banks, undertake regularly with regard to a wide variety of potential market disruptions. Most private-sector financial firms, as well, have well developed contingency and business continuity plans in place for their operations.

Nevertheless, it is clear that contingency planning for Y2K problems has a number of unique characteristics. First, of course, is the fact that one cannot rely on a backup computer site for Y2K contingency if that site also uses the same software that is the cause of the Y2K problem at the main site. In some cases, it is impractical to build a duplicate software system from scratch simply to provide for Y2K contingency. In these cases, as a senior banker explained at one of our New York Y2K forums, contingency planning amounts to, "Testing, testing, and more testing."

Contingency planning can also be separated into components that are firm-specific and those that are market-wide. Each individual firm will need to develop its own contingency plans designed to maintain the integrity of its operations during the changeover to the Year 2000. The FFIEC has recently issued guidance to banks in the United States regarding the core elements of their own contingency planning.⁵ The Joint Year 2000 Council will also be developing a paper on contingency planning for the benefit of the global financial supervisory community. This paper will seek to address firm-level contingency as well as issues of market-wide contingency.

Market-wide contingency refers to the planning by participants and supervisors done to ensure that individual disruptions can be managed in ways that will prevent them from causing disruptions to critical market infrastructures. For instance, we at the Federal Reserve have gone to great lengths to ensure that barriers are in place to prevent Y2K problems with a Fedwire participant from causing problems on the Fedwire system itself. We are also now actively researching additional steps

⁴The relevant information can now be found on the pages of the Joint Year 2000 Council.

⁵See www.ffiec.gov/y2k/contplan.htm

that the Federal Reserve could take to better prepare the financial markets as a whole to function in spite of disruptions at individual firms.

It is also important to realize that contingency planning for Y2K is not solely an operational issue. Financial firms may seek to adopt a defensive posture in the marketplace well ahead of Monday, January 3, 2000 (the first business day of the new year in the United States). For example, market participants may seek to minimize the number of transactions that would be scheduled for settlement on January 3 or January 4, or that would require open positions to be maintained over the century date change weekend.

Contingency planning involves a series of elements, many of which must be put in place well before January 2000. For example, we must consider many possible sources of disruption and determine what approaches could be available to limit the impact of each possible disruption. The sooner such thinking occurs, the more opportunity we have to plan around the possible disruptions. In this context, members of our External Consultative Committee noted that one of the key obstacles to effective contingency planning is the inability to list and consider all possible disruption scenarios. Several of these participants noted that their firms were engaging consultants or other procedures to expand the number of scenarios for inclusion in their Y2K contingency planning.

In New York, we will be using our Y2K forum later this month to discuss contingency planning with a diverse set of market participants. These local market participants will provide helpful insights for the Joint Year 2000 Council. Clearly, more work is needed on contingency planning for Y2K, especially at the international level. Once we get beyond the early fall of this year, I believe that these efforts will begin to receive much greater focus and attention, and—together with testing—will dominate our discussions of Y2K during 1999.

CLOSING REMARKS

In closing, I would like to thank the Committee for the opportunity to appear and submit a statement on this important issue. I hope that the efforts of the Joint Year 2000 Council will help to make a difference in improving the state of Y2K preparations in the international financial community. Realistically, however, I believe that it is important to understand the limits of what financial market supervisors can accomplish, either individually or collectively. Only firms themselves have the ability to address the Year 2000 problems that exist within their own organizations. Only firms working together can assure that local markets will function normally. Supervisors and regulators cannot guarantee that disruptions will not occur.

Given the sheer number of organizations that are potentially at risk, it is inevitable that Y2K-related disruptions will occur. Today it would be impossible to predict the precise nature of these disruptions. However, we do know that financial markets have in the past survived many other serious disruptions, including black-outs, snow storms, ice storms, and floods. We will also have a very interesting case at the end of this year with the changeover to monetary union in Europe. We will all be watching carefully to see whether the extent of operational problems related to this event is greater or less than expected.

I would also like to say at this point that my discussions with other members of the Joint Year 2000 Council and with members of the External Consultative Committee have convinced me that successful efforts to address the Y2K problem will be dependent on the credibility of those calling for action. Those of us—such as members of this Committee as well as others in Congress—who are seriously engaged and concerned need to be able to persuade others of the need to take appropriate actions promptly. It would be unfortunate if general perceptions of the Y2K problem are driven primarily by unofficial commentators whose rhetoric is seen to exceed the facts on which it is based, and therefore easily dismissed.

As a central banker and bank supervisor, my major concern must be with the system as a whole. At this point, I believe that we are doing everything possible to limit the possibility that Y2K disruptions will have systemic consequences in our markets. However, we must all continue to work hard—both individually and cooperatively—in the time that remains to ensure that this threat does not become more concrete.

In that spirit, Mr. Chairman, I would like to end my remarks by commending the Committee for organizing these hearings on the progress of foreign financial markets in addressing the Year 2000 computer problem.

LIST OF ATTACHMENTS

1. Communiqué of the sponsors of the Global Year 2000 Round Table, April 8, 1998.

2. Communiqué of the G-7 Finance Ministers, May 9, 1998.
3. Communiqué and fact sheet of the Joint Year 2000 Council, May 19, 1998.

ATTACHMENT 1.—GLOBAL ROUND TABLE ON THE YEAR 2000

On 8th April the Bank for International Settlements hosted a Round Table on the Year 2000, jointly sponsored by the Basle Committee on Banking Supervision (Basle Committee), the Committee on Payment and Settlement Systems (CPSS), the International Association of Insurance Supervisors (IAIS) and the International Organization of Securities Commissions (IOSCO). The meeting was attended by more than 200 senior executives (from 52 countries) representing a variety of public and private sector organisations in the financial, information technology, telecommunications and business communities around the world.

In 1997, the sponsoring organisations each took initiatives to raise awareness of the issues surrounding the century date change, enhance disclosure and prompt appropriate action within the financial industry. The sponsors' decision to organise the Round Table was motivated by their recognition of the seriousness of the challenges posed by the century date change in IT applications and of the potentially severe consequences in the financial markets associated with a lack of Year 2000 readiness. The discussions at the conference focused on the increasing challenges presented by the century date change, with specific emphasis on the identification of initiatives that need to be taken in order to ensure that financial market participants and the interconnected infrastructures around the world can continue to function without major disruptions during the transition to the new millennium.

The discussions at the Round Table confirmed that the Year 2000 issue needs to remain a top priority of senior management and emphasised that private and public sector bodies should coordinate their focus on a number of important issues and approaches. These include the continuing need to ensure strengthening and widening of external testing programmes, improving information sharing among market participants and their vendors and service providers, fostering increased disclosure by financial and non-financial corporations of their Year 2000 readiness and testing results, establishing market conventions and procedures for dealing with potential contingencies, and reinforcing the role of oversight bodies such as supervisors and auditors. The importance of thorough testing, both internally and with counterparties, was emphasised as the most effective way to ensure that problems are minimised.

SPONSORS' RECOMMENDATIONS

1. Awareness of the seriousness and scope of the problem is high but varies considerably across markets and institutions worldwide. The sponsors believe that it is imperative that all market participants, and especially financial market supervisors, work to ensure that Year 2000 preparations receive the maximum senior management attention and priority, including at the board of directors level. In particular, market participants from regions that have not yet vigorously tackled the problem should consider the need to invest significant resources in the short time that remains.

2. Testing for Year 2000 readiness is the most critical and complex issue facing the financial industry. Because widespread testing has not yet begun, the extent of the problems and the amount of remediation work that remains is unclear. The sponsoring organisations urge market participants to explore ways to enhance the transparency of testing results.

3. The sponsors consider it critical that financial market supervisors around the world implement programmes that enable them to assess the Year 2000 readiness of the organisations and market infrastructures that they supervise. Further, it is important for supervisors to ensure that the risks related to the century date change are identified, properly communicated among market participants and appropriately managed in their jurisdiction.

4. The sponsoring organisations agree that the highest possible priority should be given to Year 2000 preparations by telecommunications and electricity providers in each national jurisdiction. Failure of these organisations to prepare adequately and share information on their plans in order to promote effective testing could lead to serious disruptions in the world's financial markets.

5. In order to achieve a greater degree of market transparency, the sponsors believe that the sharing of critical information on Year 2000 readiness by all market participants is essential. The sponsors encourage private sector efforts to develop standard questionnaires and frameworks for Year 2000 disclosure as these have the potential to provide clear means for measuring progress.

6. Financial industry conventions and dispute resolution procedures should be developed to address the possibility of transaction failures. Additionally, contingency measures should be considered for the potential failure of key parts of the financial market infrastructure. Further, it is recognised that national payment systems need to coordinate testing schedules in order to provide opportunities for end-to-end testing on a domestic and international basis. The Round Table sponsors welcome and support the initiatives taken by various industry groupings in this respect.

JOINT YEAR 2000 COUNCIL

While the sponsoring organisations can raise awareness of the Year 2000 issue, only the private sector can assure that applications are ready and thoroughly tested internally and externally and on an international basis. To this end, several private sector initiatives fostering international coordination and cooperation were identified during the forum. To maintain a high level of attention within the supervisory community and to support and encourage these private sector efforts, the sponsoring organisations are forming a Joint Year 2000 Council comprised of senior members of each committee.

Attached to this communiqué are further details on the discussions and conclusions of the Round Table. The BIS Web site contains further information on the Round Table and will be used to provide ongoing information on the activities of the sponsoring organisations and of the Joint Year 2000 Council.

DETAILS ON THE DISCUSSIONS AND CONCLUSIONS OF THE YEAR 2000 ROUND TABLE

KEY ISSUES RAISED AT THE ROUND TABLE

The presentations and discussions at the Round Table confirmed that the complexity of the issues associated with the Year 2000 cannot be overestimated. Moreover, every senior political and business executive should have realised by now that the issues pose a critical management challenge and have potentially severe consequences for the ability of business entities to continue operating through the transition to the new millennium. The many challenges include the need to address resource constraints, the need to share information on readiness (notwithstanding legal issues), the coordination of testing schemes within and across markets, the heightened disclosure of vital information, the development of market conventions to deal with transaction failures and contingency planning for infrastructure problems.

Discussions at the Round Table confirmed that the Year 2000 challenge continues to require the unwavering attention of senior executives in institutions throughout the world. Organisations need to ensure that appropriate programmes have been established to address all the various readiness issues that can be expected to affect their business. The resource constraints (financial, human and technological) and the amount of time needed to remediate and test internal systems are compounded by the need to evaluate readiness and arrange for testing with counterparties and customers, payment, clearance and settlement systems, and various trading and information systems.

It is obvious that no individual IT user, individual institution, sector, market, or country is immune to the difficult issues presented by the Year 2000 problem. Even if an institution has verified and tested all its internally developed systems and applications, it will be affected by: the state of readiness of its vendors and third-party service providers; the public utilities upon which it relies, particularly the telecommunications and electricity suppliers; the infrastructures that it relies upon for its trading, payment and external information needs; and the counterparties and customers upon which its business viability rests. Moreover, the globalisation of financial and economic activity and the widespread use of information and telecommunications technology throughout the world has created various international interconnections and global interdependencies which add greatly to the complexity of the challenge.

PARTICULAR AREAS REQUIRING FURTHER ATTENTION

The discussions at the Round Table emphasised that while only the private sector can solve Year 2000 problems, public sector coordination is necessary to facilitate domestic and global activities. Such coordination is particularly helpful in designing external testing programmes, improving information sharing among market participants and their vendors and service providers, fostering increased disclosure by financial and non-financial corporations of their Year 2000 readiness and testing results, establishing market conventions and procedures for dealing with potential

contingencies, and reinforcing the role of oversight bodies such as supervisors and auditors.

Testing for Year 2000 readiness may be the most critical and complex issue facing the financial industry in its effort to ensure that the various interrelated systems continue to function through the transition to 2000. Because widespread testing has not yet begun, the degree of uncertainty regarding the scale of the problems that will arise and the remediation work that remains to be accomplished is considerable. Further, the four sponsors urge market participants to explore avenues that will serve to enhance the transparency of testing results for the benefit of the remediation efforts of the industry at large.

Given the degree of interconnection between market participants and the fact that internal remediation programmes and testing efforts will require continuous reassessment and adaptation, organisations should maintain an open dialogue with their customers, counterparties and creditors in order that all interested market participants are able to make informed business decisions. Furthermore, it is essential that organisations consider the likely effects of the century date change on their customers and counterparties when evaluating future business transactions with these entities. In order to achieve a greater degree of market transparency, the sponsoring organisations believe that all possible efforts should be made to remove legal impediments to the sharing of critical information on Year 2000 readiness.

The significant dependence of most organisations on external product and service providers is another concern. The potential effects of a failing of the telecommunications or electric power infrastructure would have far-reaching consequences for global business. The sponsoring organisations agree that the highest possible priority should be given to Year 2000 preparations by telecommunications and electricity providers in each national jurisdiction because the failure of these organisations to prepare adequately and share information on their plans in order to promote effective testing could lead to serious disruptions in the world's financial markets.

With respect to the role of oversight bodies, the sponsoring organisations consider it very important that financial market supervisors worldwide implement a strategy that enables them to assess the Year 2000 readiness of the organisations and market infrastructures they supervise in order to make certain that the risks related to the century date change are identified and appropriately managed in their jurisdiction. When Year 2000 remediation and testing programmes of individual financial organisations or infrastructure operators are deemed inadequate, supervisors will need to take prompt, meaningful action. Further, it is essential that internal and external auditors understand how an organisation's programmes for remediation and testing are likely to effect their going concern status. It is also necessary for auditors to ensure that the information used to compile client financial statements has not been compromised by system errors related to the date change.

Another important issue is the extent to which market participants and regulators can rely on certifications of Year 2000 readiness. The sponsoring organisations believe that financial institutions must understand that an issuance of a certification does not guarantee a product will perform as expected. While vendors have an obligation to let clients know when they have renovated and tested their products, users need to test that product within their environment to ensure that it performs properly as a component of their system. As such, attempts to obtain legally binding certifications of compliance are likely to needlessly complicate the important work that must be completed in the period prior to 1st January 2000. Additionally, market participants must not adopt a false sense of security but recognise the limits of any statement on readiness and that they need to perform their own due diligence.

FOLLOW-UP TO THE ROUND TABLE

The private sector, both in a domestic context and internationally, appears committed to move ahead on a variety of fronts, including the further development of mechanisms to share information relating to Year 2000 issues, an effort to set minimum best practices for programmes designed to achieve readiness, and the support of rigorous internal and external testing. Although competitive pressures may arise from the markets' assessment of the readiness of individual institutions, there is likely to be scope for institutions, individually or through industry associations, to cooperate to ensure that the time remaining before the new millennium is used to the mutual benefit of all organisations. In the financial industry, in particular, it would be useful if conventions could be developed for the resolution of transaction failures, and contingency measures are considered for the potential failure of key parts of the financial market infrastructure. Further, it is recognised that national payment systems need to coordinate testing schedules in order to provide opportuni-

ties for end-to-end testing on a domestic and international basis. The Round Table sponsors welcome and support the initiatives taken by various industry groupings in this respect.

The sponsoring organisations intend to remain pro-active and continue to pay particular attention to Year 2000 issues and to the way in which individual firms, market infrastructures and industry associations in their respective areas of competence implement programmes and testing schemes aimed at ensuring Year 2000 compliance. In the case of the Basle Committee, it may be decided in the future to publish, if needed, more guidance on specific issues, such as the cross-border aspects of the Year 2000 problem and the management of external dependencies. The CPSS will maintain and expand the special section on the BIS Web site (www.bis.org) that provides information on the testing plans and readiness status of payment and settlement systems worldwide. Likewise, IOSCO will continue to update the special Year 2000 section on IOSCO's Web site (www.iosco.org), including information on the testing and readiness status of the securities industry and markets worldwide. The IAIS will continue to work with its members to urge insurance companies to implement detailed action plans to resolve the Year 2000 problems associated with their business activities.

Where appropriate, the four sponsors plan to take further joint action to promote the Year 2000 readiness of the global financial industry. They will cooperate with regional efforts to promote the organisation of regional seminars on the Year 2000 topic in order to enhance worldwide awareness of the seriousness of the situation and to induce appropriate action with the aim of achieving Year 2000 readiness and contingency planning.

In order to share information on regulatory and supervisory strategies and approaches, discuss possible contingency measures, and establish a point of contact with national and international private sector initiatives, the sponsoring organisations have formed a Joint Year 2000 Council, composed of senior members of each committee with broad-based experience.

The BIS Web site contains further information on the Round Table and will be used to provide ongoing information on the activities of the sponsoring organisations and of the Joint Year 2000 Council. The Web site also carries details on the Year 2000 readiness and testing schedules of payment and settlement systems worldwide. A summary video recording of the proceedings will also be available and can be obtained (in the appropriate format for your region) from the BIS Publications Service.

ATTACHMENT 2.—CONCLUSIONS OF G-7 FINANCE MINISTERS

LONDON, 8 MAY 1998

1. Finance Ministers of the G-7 and the representative of the European Commission met in London on 8 May, as a part of the preparations for the Birmingham Summit, 15-17 May. We reached conclusions on a group of issues, set out below. We will also be reporting our discussions to our Heads of State or Government, for their Summit next week. Michel Camdessus, Managing Director of the IMF and Jim Wolfensohn, President of the World Bank, joined us for our discussions on the lessons of the Asian crisis, and steps to strengthen the world's financial system.

WORLD ECONOMY

2. We reviewed recent developments in the world economy. We welcomed the historical decisions in Europe on Economic and Monetary Union. We look forward to a successful EMU which contributes to the stability of the international monetary system. We discussed and welcomed the substantial policy measures announced by the Government of Japan in April, aimed at achieving domestic demand-led growth. Japan expressed its intention to implement them quickly and stressed the importance of further strengthening the financial system. We also noted that the United States economy required vigilance to stay on a sustainable path.

STRENGTHENING THE GLOBAL FINANCIAL SYSTEM

3. Globalisation brings clear benefits to people throughout the world but it also brings certain risks. Previous summits have agreed on ways to reduce these risks and strengthen the global financial system. However, the continuing process of globalisation and recent events in Asia have revealed a number of weaknesses and vulnerabilities in national and international financial systems, as well as in the lending practices of private sector investors. We need to act to strengthen the global financial system further, both to reduce the likelihood of such crises occurring in future and to improve techniques for containing and responding to crises when they do occur.

4. We have developed proposals where there is now an emerging consensus for modifications to the architecture of the international financial system. There are important aspects of the issues discussed that require further work. Discussion within our countries, with emerging market countries and with the private sector will continue over the coming months. For now, having restated the importance of sound economic policies, we have identified the need for action in five key areas:

- enhanced transparency and data dissemination;
- helping countries prepare for integration into the global economy and for free global capital flows;
- strengthening national financial systems;
- ensuring that the private sector takes responsibility for its lending decisions;
- enhancing further the role of the International Financial Institutions and co-operation amongst them and with the international regulatory fora. We are considering ways, and ask the relevant institutions to develop proposals on ways, in which greater co-operation can be achieved including options for institutional reform.

5. We have set out our proposals in a separate report to our Heads of State or Government, which outlines how work is being taken forward in each of these areas and signals a number of areas for further work.

FINANCIAL STABILITY: SUPERVISION OF GLOBAL FINANCIAL INSTITUTIONS

6. Since the Lyon and Denver Summits, work has been underway to strengthen the international financial system. Recent events in Asia, combined with the rapid consolidation and globalisation in the financial sector, have highlighted once again the need to improve urgently co-operation between supervisors of internationally active financial institutions. We welcome the work done by the international regulatory bodies in this area and urge them to move quickly towards implementation of the concepts they have devised. Today we have reached important conclusions in a separate report. We commend the 10 Key Principles on information exchange which we will be promoting throughout the world as standards to which all countries should aspire. The G-7 also looks forward to the continuing contribution of the private sector to developing international standards that enhance the supervision of global financial firms, while reducing regulatory burdens. On the year 2000 issue, we call on the Basle Committee, the International Organisation of Securities Commissions (IOSCO), the International Association of Insurance Supervisors (IAIS) and the Committee on Payment and Settlement Systems (CPSS), and their newly formed joint Year 2000 Council to monitor the work that firms in the financial area already have underway, and to do all that they can to encourage compliance.

FINANCIAL CRIME

7. The fight against financial crime is one of the major challenges of our times. We emphasise that, as both financial services and crime become increasingly globalised, this challenge can only be met if all major financial centres work together. Effective co-operation between financial regulators and law enforcement authorities at the international level is an essential element of this. A G-7 expert group was set up by the Denver Summit to consider how this cooperation can be improved within our countries. We now agree to:

- review our laws and procedures concerning information exchange between financial regulators and law enforcement agencies against a common list of key elements for effective cooperation;
- identify by October what modifications are desirable, consistent with fundamental national and international legal principles, to improve our systems and to implement such measures as quickly as possible;
- take forward a number of practical steps to improve cooperation;
- disseminate a G-7 Reference Guide to Procedures and Contact Points on Information Exchange to financial regulators and law enforcement agencies in our countries and to expand this Guide to cover all major financial centre countries.

8. We have instructed the G-7 expert group to provide a report on progress on all these areas and any further recommendations in preparation for the Köln Summit.

9. We also recognise that action must not be confined to G-7 members and we emphasise that all countries should provide effective international administrative and judicial cooperation. In particular, we are concerned at the number of countries and territories, including some financial offshore centres, which continue to offer excessive banking secrecy and allow screencompanies to be used for illegal purposes.

We recognise that the Financial Action Task Force (FATF) has already taken significant steps in this area and endorse FATF's efforts to support the Offshore Group of Banking Supervisors in its mutual evaluation process. We therefore call on the FATF to review the present position and make recommendations to Ministers by the Köln Summit on what can be done to rectify these abuses.

FINANCIAL ACTION TASK FORCE

10. We commend the work that the FATF has carried out since its creation in 1989 to develop and promote action against money laundering. Its Forty Recommendations remain the essential standard for effective countermeasures. However, although considerable progress has been made in the fight against money laundering, we agree with the FATF that much still remains to be done. We therefore endorse the decision of the FATF to continue its mandate for a further five years and the new strategy it has adopted.

11. We agree that the major task during this period should be the establishment of a world-wide anti-money laundering network encompassing all continents and regions of the globe. We support FATF's intention to expand its own membership to a limited number of countries meeting the agreed criteria and to encourage the further development of regional anti-money laundering bodies. We call on other international organisations to work closely with the FATF in its mission. We also consider it essential that the FATF continues to monitor money laundering trends and techniques and to ensure that its Recommendations keep pace with new developments.

12. We encourage FATF to implement its new strategy as quickly as possible and urge all countries to join in the fight against money laundering.

TAX COMPETITION

13. We warmly welcome the OECD agreement on action to tackle harmful tax competition. This provides a strong basis for co-ordinated international action to curb harmful tax competition through preferential tax regimes and tax havens. And we note the complementary development of the EU Code of Conduct.

14. We strongly endorse the OECD recommendations, and we welcome the establishment of the OECD Forum on harmful tax practices. We will work through the Forum to secure effective implementation of the recommendations, and will actively support the proposed dialogue with non-OECD members to promote the agreed principles and recommendations on a global basis.

15. We urge the OECD to give particular attention to the development of a comprehensive programme to improve the availability of information to tax authorities to curb international tax evasion and avoidance through tax havens, and through preferential tax regimes. This would involve developing further the proposals to improve exchange of tax information between OECD countries to address the problems caused by restricted access to banking information and to improve the supply of information from tax havens by the negotiation of effective information exchange arrangements.

16. In addition we encourage international action to enhance the capacity of anti-money laundering systems to deal effectively with tax related crimes. Action here would both strengthen anti-money laundering systems and would also be an essential component of a coherent programme to increase the effectiveness of tax information exchange arrangements. Action could be based on furthering the following objectives:

(a) Effective anti money laundering systems must ensure that obligations to report transactions relating to suspected criminal offences continue to apply even where such transactions are thought to involve tax offences.

(b) Money laundering authorities should be permitted to the greatest extent possible to pass information to their tax authorities to support the investigation of tax related crimes, and such information should be communicated to other jurisdictions in ways which would allow its use by their tax authorities. Such information should be used in a way which does not undermine the effectiveness of anti-money laundering systems.

17. We intend to pursue the development and implementation of these objectives with our OECD partners and in other appropriate fora including the FATF.

18. We in G-7 commit ourselves to giving a lead by working to further the foregoing objectives in all territories and jurisdictions for which we have international responsibilities or over which we have influence. And we will follow closely the progress of further work on harmful tax competition which the OECD intends to undertake and the related work on tax related crimes.

CUSTOMS PROCEDURES

19. In Lyon we initiated an effort to standardize and simplify customs procedures. We welcome the further work undertaken since Denver which has produced a harmonised and simplified data set for import and export procedures, and urge our experts to reduce that data to a minimum consistent with customs responsibilities by the end of this year. We ask our experts to complete their work, including the development of standardised electronic declarations and to encompass the related import and export data requirements of other government departments and agencies. Our countries will, drawing on each others' experience, take all steps possible to establish customs prototypes or other procedures involving all the G-7 countries, which will use an agreed G-7 data set, by the Summit in the year 2000 if possible.

20. We also welcome the significant progress made on the Action/Defis programme of the World Customs Organisation to strengthen co-operation between enforcement agencies and associations of international carriers. We encourage further development of this work.

AGEING

21. We welcome the reports of the G10 and OECD on macroeconomic and financial implications of ageing populations. We ask the OECD to undertake further work looking at individual country ageing issues. We ask for a report from the OECD by the Summit in the Year 2000.

ATTACHMENT 3.— JOINT YEAR 2000 COUNCIL PRESS COMMUNIQUÉ

19TH MAY 1998

On the occasion of the Round Table on the Year 2000 held at the Bank for International Settlements (BIS) on 8th April 1998, the committees sponsoring the event agreed to establish a Joint Year 2000 Council. The Council is constituted by senior members of each committee, that is the Basle Committee on Banking Supervision (Basle Committee), the Committee on Payment and Settlement Systems (CPSS), the International Association of Insurance Supervisors (IAIS), and the International Organization of Securities Commissions (IOSCO). Mr. Ernest Patrikis, First Vice President, Federal Reserve Bank of New York, chairs the Council and its secretariat is provided by the BIS.

The Council intends to meet regularly and has agreed on a range of initiatives to ensure a high level of attention on the Year 2000 computer challenge within the global financial supervisory community, to share information on regulatory and supervisory strategies and approaches, to discuss possible contingency measures, and to serve as a point of contact with national and international private-sector initiatives.

At their meeting in London in early May, the G-7 finance ministers called on the Council and its sponsoring committees to monitor the Year 2000-related work in the financial industry worldwide and to take all possible steps to encourage readiness.

A fact sheet presenting the Council's objectives and projects as well as its membership is attached. Information regarding the Council's ongoing activities will be posted on the BIS web site (www.bis.org).

JOINT YEAR 2000 COUNCIL FACT SHEET

The mission of the Joint Year 2000 Council is:

- to ensure a high level of attention on the Year 2000 computer challenge within the global financial supervisory community,
- to share information on regulatory and supervisory strategies and approaches,
- to discuss possible contingency measures, and
- to serve as a point of contact with national and international private-sector initiatives.

The Joint Year 2000 Council is sponsored jointly by:

- the Basle Committee on Banking Supervision,
- the Committee on Payment and Settlement Systems (CPSS),
- the International Association of Insurance Supervisors (IAIS), and
- the International Organisation of Securities Commissions (IOSCO).

The Secretariat for the Joint Year 2000 Council is provided by the Bank for International Settlements (BIS). Information from the Council will be made available on the BIS Web site (www.bis.org).

The projects envisaged by the Joint Year 2000 Council include:

- providing a forum for the disclosure of the status of global financial market preparations for the Year 2000,
- encouraging all payment and settlement systems, clearinghouses, exchanges, and other parts of the global financial market infrastructure to make publicly available information on their preparatory efforts and testing programs,
- meeting regularly with an external consultative committee composed of organizations or associations with an international perspective on Year 2000 preparations,
- developing a global supervisory contact list for the Year 2000 challenge that includes a coordinating contact covering as many countries as possible,
- supporting, co-sponsoring, and providing assistance in planning further conferences and roundtables on the Year 2000 challenge in different regions of the world,
- facilitating exchanges of information related to Year 2000 testing programs within the international financial community,
- encouraging coordinated cross-border testing to the maximum extent possible,
- developing a series of publicly-available working papers on different aspects of the Year 2000 challenge,
- facilitating the sharing of information on Year 2000 preparations by core infrastructure providers such as telecommunications, electric power, and government utilities, as they relate to preparations by financial market participants,
- sharing and developing ideas on contingency measures appropriate for individual firms and domestic markets,
- serving as a point of contact for the coordination of international contingency efforts, and
- encouraging the development of, and the global sharing of plans for, market conventions and dispute resolution procedures designed to mitigate the effect of Year 2000 transaction failures.

MEMBERS OF THE JOINT YEAR 2000 COUNCIL

- Chairman: Mr. Ernest Patrikis, Federal Reserve Bank of New York
- Representing the Basle Committee: Mr. Huw Evans, Bank of England (Mr. Martin Owen); Mr. Marcel Maes (Mr. Jos Meuleman), Banking & Finance Commission, Belgium; Mr. José Florencio Guzman, Instituciones Financieras de Chile (Mr. Jorge Cayazzo)
- Representing the CPSS: Mr. Carlo Tresoldi, Banca d'Italia; Mr. Jammaz Al-Suhaimi, Saudi Arabian Monetary Agency (Mr. Taha Al-Kuwaiz and Mr. Ibrahim Al Hurabi); Dr. J. Tromp, South African Reserve Bank
- Representing the IAIS: Mr. Tarmo Pukkila, Ministry of Social Affairs & Health, Finland; Mr. Bruno Bézard, Ministère de l'Economie et des Finances, France; Mr. Richard Smith, Insurance and Superannuation Commission, Australia
- Representing IOSCO: Mr. Robert Colby, United States Securities and Exchange Commission; Mr. Masayuki Tamagawa, Securities Bureau of the Ministry of Finance, Japan; Dr. Munir Majid, Malaysian Securities Commission
- Ex officio: Mr. William McDonough, Chairman, Basle Committee on Banking Supervision, Chairman, Committee on Payment and Settlement Systems; Mr. Anthony Neoh, Chairman, International Organization of Securities Commission Technical Committee; Mr. John Thompson, Chairman, International Association of Insurance Supervisors
- Secretariat (BIS): Mr. Paul Van den Bergh, Head of Secretariat; Miss Cheryl Gleason; Mr. Yves Carlier
- Correspondents: Mrs. Danièle Nouy, Secretariat, Basle Committee on Banking Supervision; Mr. Eudald Canadell, Secretariat, IOSCO (Mr. Brian Z. Gelfand); Mr. Knut Hohlfeld, Secretariat, IAIS; Mr. Darryll Hendricks, Federal Reserve Bank of New York
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PREPARED STATEMENT OF HOWARD A. RUBIN

Thank you for the opportunity to testify before the Special Committee on the Year 2000 Technology Problem. This is an issue that I have focused on for years in my work tracking and interpreting global technology trends and in my role as a consultant to some of the largest companies in the United States and the world. Based on the guidance provided in your invitation to me to testify today, I will confine my comments to the specific areas currently of interest to the Committee—namely, the progress of foreign financial companies in managing the Year 2000 computer problem and the potential negative impact of failures abroad on the U.S. economy and ways in which the government and private sector can mitigate those risks.

My fundamental position on this matter is that, in the global financial markets, no institution stands alone and is immune to the effects of the disruption of business transactions as they flow around the world. The source of such disruptions may be a result of Year 2000-related problems in the financial sector itself or may also be caused by failures in the infrastructure that supplies power, water, communications, transportation, or any of the core social or business services. Furthermore, the Year 2000 computer problem has both direct and indirect economic consequences for society and business. The direct consequences have to do with the ability of businesses to conduct business itself as the millennium approaches and is eventually upon us, subject to the disruption sources previously mentioned. The indirect consequences are what might be considered “second order” effects—these have to do with the impact on the business of the diversion of resources to work on the Year 2000 problem itself, in this era in which technology, business, and society are all tightly intertwined. Therefore, whether or not an organization believes Year 2000-related computer problems will impact it internally, it is imperative that, in the context of its own safety and that of the global financial network, it assess its Year 2000-related risks and act to abate any identified. However, because this problem is unique in computing/business history, organizations must be prepared to deal swiftly and decisively with three risk categories: the “known knowns”—those things they know they must address about the problem; the “known unknowns”—those things they know they don’t know about the problem, but are prepared to face; and the “unknown unknowns”—those issues that have not yet been identified as issues, but must be responded to when they arise.

First, as a backdrop for discussing my view of the Year 2000 picture for foreign financial companies, I’d like to provide you with a quick snapshot of some of the “known knowns” of the global Year 2000 situation and the current U.S. status based on my survey results for 1Q98 and 2Q98. I have been tracking Year 2000 trends on a quarterly basis for more than 4 years through my extensive data collection network.

The table that follows provides an overview of estimated Year 2000 repair cost impact, by country, across all industry groups, expressed as a percent of 1996 GDP for the countries for which I have been able to obtain data. (My friend and colleague Capers Jones, of Software Productivity Research, supplied some of the base cost data for my analysis.) This should provide the Committee with some insight into the magnitude of the diversion of resources that are likely to be deployed to deal with the problem—these same resources, under “normal” business conditions, would be focused on moving business and society forward. Now they are consumed by what some consider to be “survival” issues.

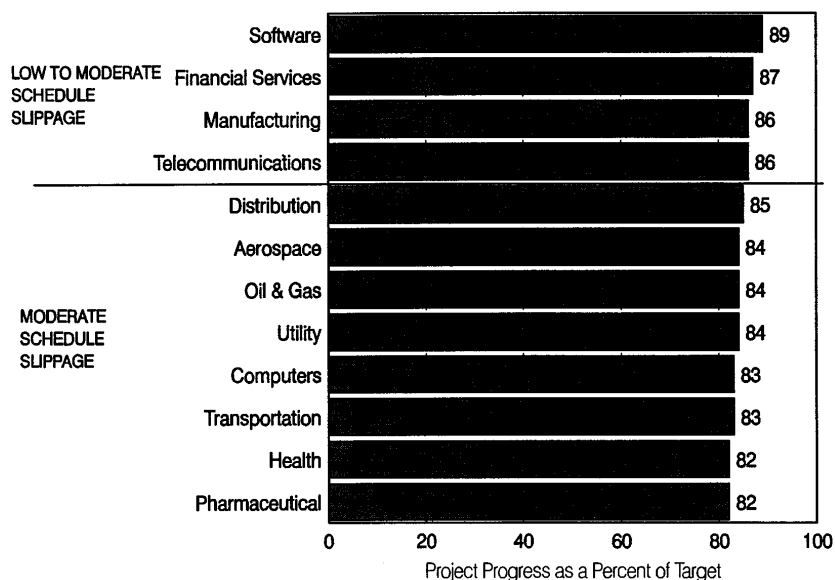
Country	Estimated Y2K total repair cost	Estimated Y2K total repair cost as percent of 1996 GDP	Companies in survey	Percent of systems “work in progress”	Robbins/Rubin Y2K schedule indicator
United States	\$187,921,430,000	2.5	108	.83	.87
Japan	105,964,254,000	2.3	12	.78	.85
Korea	22,614,322,500	4.7	30	.68	.78
Germany	60,544,165,000	2.5	4	.79	.84
UK	42,931,317,000	3.7	8	.82	.85
France	42,379,656,000	2.8	7	.78	.84
Italy	33,731,929,000	2.8	2	.77	.79
Spain	17,328,201,000	3.0	3	.72	.77
Netherlands	10,199,431,000	2.6	4	.77	.83
Belgium	7,232,049,000	2.7	2	.78	.84
Portugal	4,899,455,000	4.9	1	.69	.79
Sweden	6,191,702,000	2.5	3	.78	.86
Canada	18,129,243,000	3.1	22	.81	.85
India	4,037,957,000	1.2	5	.75	.84

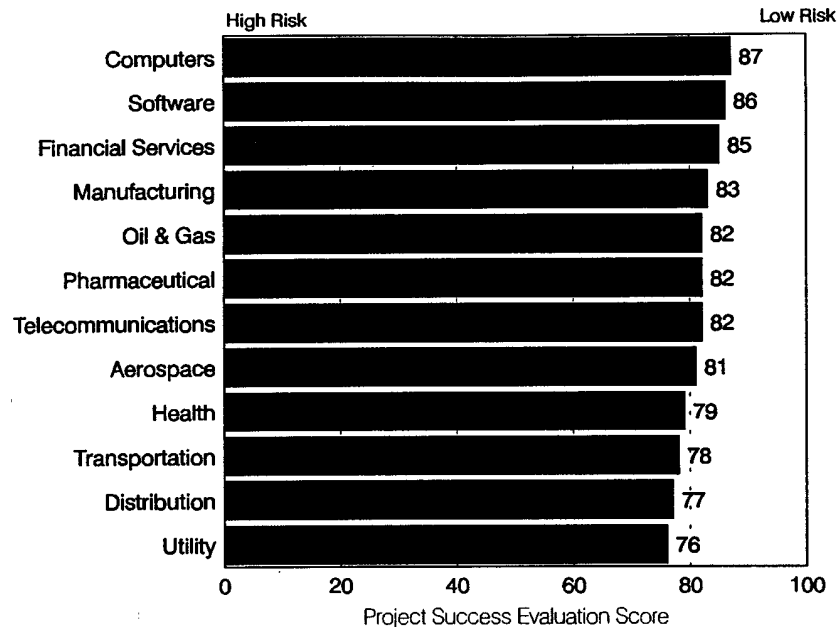
Country	Estimated Y2K total repair cost	Estimated Y2K total repair cost as percent of 1996 GDP	Companies in survey	Percent of systems "work in progress"	Robbins/Rubin Y2K schedule indicator
Mexico	19,250,198,000	5.7	1	.62	.76
Australia	9,894,632,000	2.5	5	.73	.81
Argentina	8,292,548,000	2.8	2	.58	.79
China	4,442,256,500	0.5	3	.55	.78
Brazil	35,832,775,000	4.8	3	.61	.78
Russia	32,246,348,750	7.3	5	.58	.83
Averages	33,703,193,508	3.3		.72	.82
Totals	674,063,870,150		230		

In terms of the direct GDP impact of Year 2000 problem risk, my colleagues at Cap Gemini have recently published a "Millennium Index" for the United States and European markets, which shows those at greatest risk to be Germany, Italy and the Netherlands, Finland, Belgium and the UK, the United States, Sweden, Denmark and Spain, Norway, and France. In addition, they have identified Germany, Finland, the Netherlands, Belgium, and the UK and Italy as the countries having the largest number of organizations that are running "late."

One interpretation of these analyses is that, based on the data presented (progress measures and GDP diversion/impact), there is clearly a significant level of global risk. However, in my opinion, the presence of such risk does not automatically imply disaster, just a need for decisive risk management.

The next two charts provide a similar snapshot of the U.S. industry position relative to schedule slippage and likelihood of project success, relying on a high-level Year 2000 risk assessment technique that I recently published ("Evaluating Success of a Y2000 Project," by Rubin and Robbins, published by Information Economics Press). In the context of this hearing, the single most important finding illustrated is that the financial services sector in the United States is among the top three groups in terms of schedule performance and controlling project risk. However, these points are no basis for complacency.





Finally, 2Q98 U.S. survey data sampled from Fortune 500 companies as of June 28, 1998, indicates:

- The trend to underestimate Year 2000 cost continues—87 percent of those surveyed say their Year 2000 spending projections are too low. Only 2 percent now say they are “on target.” A further 69 percent say they are unable to assess whether their 1999 projections will go up, go down, or stay the same.
- A full-fledged Year 2000 strategy has begun in 86 percent of those companies surveyed—up from 60 percent in March 1998.
- The number of companies focusing on contingency planning has jumped from 3 percent in March 1998 to 72 percent in June 1998—but few real details of such plans have been worked out.
- Year 2000 compliance is becoming a factor in business-to-business relationships—55 percent of those surveyed indicate it is very likely or potentially likely that they will not do business with noncompliant suppliers and partners.
- A small percentage of those surveyed, 3 percent, claim they may sell off or reorganize parts of their business in response to Year 2000 issues.
- Staff working on Year 2000 projects are increasingly rating the work as extremely “boring”—up from 32 percent in March 1998 to 48 percent as of June 1998.
- 84 percent, up from 80 percent in March 1998, have had to change their overall approach since starting their initiatives.
- 84 percent now say they are slipping milestones in their plans. This is an increase from the 78 percent that said so in March 1998.
- In terms of work activity, for the mainframe platform, the dominant activities are conversion and initial testing, while the desktop and distributed environments lag with a focus on assessment and conversion.
- The percentage of organizations expecting to have more than 50 percent of their systems compliant by 1/1/1999 has dropped from 85 percent in March 1998 to 81 percent.
- 40 percent of those surveyed claim to have had a Year 2000-related failure. Primary impact areas are systems processing disruption, financial miscalculation, supply chain/logistics problems, and customer service.

Now, I'd like to move on to the issue of the progress of foreign financial companies—this is an area of many “known unknowns”.

First, from my own work with leading U.S. corporations, the importance of effectively dealing with the Year 2000 problem on a global basis is well understood. This

is evident in the details of their plans as they have moved toward international mobilization and coordination of their Year 2000 programs. In addition, inter-organization activity has greatly increased and accelerated in terms of "buddy testing," "street testing," and other self-initiated articulation activities. However, one of the biggest issues that I see arising between parties in this sector has to do with the ability of organizations to candidly and honestly exchange information—more on this later.

In addition, level of concern about the Year 2000 problem and progress toward a solution vary around the world. The highest Year 2000 problem visibility, in my opinion, is evident in the United States, UK, Canada, other European countries, and Australia. Eastern/Asian markets now appear to be increasing their level of concern, albeit somewhat late in the game as gauged against United States activity initiation.

On a more quantitative basis, my observations about Year 2000 projects in foreign financial companies are:

- project starts appear to be late lagging behind U.S. peers by 3 to 12 months or more
- spending estimates are typically lower than U.S. peer companies
- spending rates are lower than experienced in U.S. peer companies by about 50 percent
- project priority is not quite as high as in U.S. peer companies

In addition to using my own data sources, I typically try to compare my findings with other work published in the field. In this regard, the eBANKER results published by the Financial Times, developed from surveying the Year 2000 status of the top 1,000 banks in the world, shed additional light on the field. Again, posturing and positioning may somewhat taint the accuracy of their findings, but the high-level story shows:

- 496 respondents out of the 1,000 contacted claim they will be ready for Year 2000
- 87 percent claim their projects are on schedule
- The "not on schedule category" has a high number of institutions in Japan and Germany
- 6 out of the 10 largest banks claim their critical systems will be compliant by December 1998

Again, as indicated by my own survey results, a significant level of risk is apparent, as demonstrated by the low response rate, the amount of slippage, and the concentration of those "not on schedule" in key market areas. A further contributor to the level of risk is the real lack of accurate data about the complete global picture. But again, risk does not automatically imply disaster—it does imply risk management, which is an issue that all the world's major financial institutions have significant experience with.

Keeping in mind both the global cross-industry and the financial sector Year 2000 picture I just presented, I believe that successfully dealing with the Year 2000 problem requires a comprehensive risk management mindset. Reducing risk will decrease the probability of business disruption, but accurate information and open communication are the cornerstones of a successful risk management program. In addition, the risk management process is dependent on both quantitative and qualitative information—both of which are not generally available today or may be reported using misleading and easily misinterpreted measures.

From a qualitative viewpoint, key indicators of a high potential for Year 2000 success that the Committee should be concerned about are:

- Program management.*—Having a well-defined project/program with clear accountability.
- Business impact management.*—Having a clear business view of the problem.
- Scope of program.*—Having a well-defined plan that links technical and business priorities.
- Control.*—Having appropriate tracking and oversight in the context of risk management.
- Resource allocation.*—Having the right (and adequate) technical and business resources assigned to the project.
- Program assurance.*—Having the right testing procedures and processes in place.
- Contingency planning/event management.*—Having contingencies identified and contingency plans ready to be put into action.

While many organizations are reporting "progress measures," in terms of "percent systems converted" or "percent partners contacted" and the like, or are attempting to assess progress based on a universal Year 2000 progress "timeline," this class of quantitative measures sheds little light on the probable success of a project. From a quantitative viewpoint, to truly understand the progress of an organization's Year 2000 efforts, the following two questions need to be answered in a concise and simple way:

- Is the project proceeding, in all its dimensions—from technology, to communication, to contingency planning—at the planned pace in terms of work being performed to bring the organization toward implementing a Year 2000 business environment?
- Is the Year 2000 business environment becoming operational within the required time frame?

Please note that these are "business" and not solely "technical" issues. It is clear that the time has come to escalate the management of the Year 2000 problem to the business side of the equation in all companies and insist on business accountability.

I suggest this Committee adopt such a composite Year 2000 tracking and risk management viewpoint and move to enable and encourage, both nationally and globally, the following:

- Mechanisms and communication channels for organizations to obtain accurate and timely information about the state of counterparties and those in its business transaction chain.
- Mechanisms and communication channels for organizations to obtain accurate and timely information about the state of its environmental chain (utilities, telecommunications, public safety, etc.).
- Scenario analysis, driven from a business viewpoint, that will help organizations (and countries) develop contingency plans that deal with both single points or failure and multiple concurrent points of failure.

These suggestions point the way to new forms of information clearinghouses and perhaps even a national risk register. Success, to me, in dealing with the Year 2000 problem does not mean more rules and regulation regarding the methods or timelines that organizations must use in attacking the problem. Rather, success means enabling organizations to develop their own solutions and strategies internally while expanding the bandwidth and content of honest and open articulation between companies and across governments to minimize global risk.

Perhaps more importantly, my final observation is contrary to the basic focus of this hearing—this is not a standalone company or industry issue; it is a network issue. The most difficult and critical of the Year 2000 risks are the "unknown unknowns" of cross-industry failures. We most likely will not know what these are ahead of time, so of utmost concern to this Committee should be seeing to it that organizations in all industries are prepared for rapid event management.

Therefore I view the Year 2000 problem as a problem of "choice". The world's governments and companies have the "choice" to manage the risks by deploying technical and business resources to deal with the problem, they have the "choice" of focusing those resources on the most critical business and social areas where the impact will be felt, they have the "choice" to openly share information with each other and the public, and they have the "choice" to prepare for event and perhaps crisis management.

Again, thank you for the opportunity to share my ideas with the Committee. I'll be glad to keep you informed as my global tracking and analysis activities continue.

PREPARED STATEMENT OF JOHN WESTERGAARD

Good morning. My name is John Westergaard. I am founder, Editor and Publisher of Westergaard Online Systems, Inc., a publisher of Internet webzines which is cybertalk for magazines on the Internet. We also conduct investment conferences and have so for 21 years.

We publish Westergaard Year 2000, a daily webzine providing information and analysis of the Year 2000 Millennium Bug which I will refer to here as simply "Y2K". Westergaard Year 2000 publishes several dozen expert columnists who regularly contribute commentary covering virtually all aspects of the Y2K problem.

Westergaard Year 2000 is published as a not-for-profit public service under the editorship of Adam Kaplan and assistant editor John Yellig. Its Internet address is www.y2ktimebomb.com. It receives thousands of visitors daily from some 80 coun-

tries and is recommended as a Y2K resource by the World Bank and the Federal Reserve among others.

I understand of course that the focus of this hearing is to be the international financial and economic aspects of the Y2K problem. I'll get to that. But first allow me to state some views with respect to the handling of Y2K compliance by the federal government from a perspective of having observed the issue develop at close hand for the past 2½ years.

I do so because the main point I hope to impress upon this Committee is the need for the President, the Department of Defense, our United Nations representatives, and the Secretary of the Treasury, to exert leadership in alerting the world to the Y2K problem and to provide technological assistance in achieving date compliance.

I fear historians will not treat the Clinton Administration well for its management of a crisis which promises to be the defining event of its second term. Congress will fare better thanks in main to Senators Bennett and Moynihan of this Special Committee who have played early leadership roles in sponsoring Y2K awareness, and to Congresspersons Steve Horn and Carolyn Maloney for the excellent hearings of their Committee on Government Reform and Oversight.

On the executive side, the agencies testifying immediately following me here today—the Federal Reserve and the SEC—have been well ahead of the curve on this issue. The General Accounting Office (GAO) has done outstanding work.

The Office of Management and Budget (OMB), on the other hand, appears to have focused on papering the problem over and has hampered Y2K remediation programs at the state level by projecting absurdly low federal estimates of remediation costs. This has caused supplemental budget requests of state officials to appear high in contrast, invoking thus the skepticism of state legislators.

The most egregious Y2K compliance offender, considering the strategic importance of its mission and the vast resources and planning abilities available to it, has been the Department of Defense (DOD). As recently as last week the GAO issued a report sharply critical of the Navy's compliance status. The Army and Air Force are also in serious trouble over Y2K.

As for the media, with exception of the Washington Post and the Financial Times of London, the general press here and abroad has failed miserably in addressing the crisis. As recently as November, for example, The Los Angeles Times was calling Y2K basically a hoax—ironically at the very time that their internal operations people were struggling over allocating resources to meet compliance deadlines.

The Wall Street Journal's coverage has been abysmal. I was told last year by a Journal reporter that his editors weren't interested in the Y2K story because it had already been told. That's the equivalent of reporting the attack on Pearl Harbor on Monday morning, December 8, 1941 and then advising readers the next day: "Oh, that story? We told you yesterday there's a war on."

Y2K may not be war but neither is it a one day story. It is an event that will encompass 6 years by my count from 1996 through 2002. Think of it as a plague, an "electronic bubonic" if you will.

However extreme my comments may appear, let me assure the Committee that my view of Y2K is not apocalyptic. There will be a worldwide Y2K recession but there have been recessions in times past. The world has survived them and often been the better for the experience. I am in fact a congenital optimist and have great confidence as to the ability of the United States government, the business community, and the financial community to eventually work their way through Y2K.

I foresee a period encompassing the first six month of 2000 as being equivalent to the first half of 1942—Pearl Harbor to the Battle of Midway—during which the U.S. mobilized for war. Enormous positive energy and creativity was unleashed then and I expect the same to happen this time.

I come here today not as a computer expert by any means, but as an investment strategist who has a history of spotting financial and economic trends early. That's not because I'm smart. It's because I have published investment research on emerging small companies for 40 years run by entrepreneurs typically engaged in promoting new business opportunities. I have thus tended to have an early look at new trends.

It was just such an entrepreneur seeking research sponsorship and capital—Bob Gruder of Alydaar Corporation—who introduced me to Y2K in December 1995. I immediately took the matter to my friend of 40 years, Senator Pat Moynihan, who was incredulous as was everyone then (and as many still are). But in keeping with his academic discipline, the Senator requested that a study be prepared by the Congressional Research Service.

CRS reported back within a few months substantiating in full the issues I had raised. As an aside, is it not curious that the two legislators who were first to recognize and take action on Y2K are former college professors: Senator Moynihan and

Congressman Horn? Perhaps we should be electing more college professors to public office.

Isn't it also curious that others in Washington who have quickly grasped the Y2K issue have backgrounds in business, to wit Senator Bennett and SEC Chairman Arthur Levitt? Perhaps we should be electing more business people as well.

Senator Moynihan advised the President of Y2K by letter in July 1996 and recommended appointment of a "Manhattan Project" style Y2K Czar to direct federal compliance. A perfunctory response was received in November, not directly from the President but from Frank Raines at OMB. The Senator then arranged a meeting with Secretary of the Treasury Bob Rubin and Assistant Secretary Larry Summers on December 14, 1996 in which I participated.

Rubin and Summers were generally aware of the problem. We learned that Treasury was then budgeting circa \$75 million for Y2K. According to a recent report, the figure in just 15 months has blossomed to \$800 million.

The first public acknowledgment of Y2K by the White House occurred on August 15, 1997, a full year after the Moynihan letter, when the President stated at a press conference that Americans need not worry about the "computer clock" problem. The appointment of John Koskinen as Federal "Y2K Czar" in February of this year was the first sign that the White House is taking Y2K seriously.

Senator Moynihan and I met with Mr. Koskinen at the end of March and I am pleased to say he left me, and I believe the Senator, with a comforting sense that an adult has been placed in charge. I believe Mr. Koskinen occupies the fourth most important position in America today after the President, Fed Chairman Greenspan, and Treasury Secretary Rubin.

So what should the Senate be looking at and thinking about in respect to the Y2K problem as it relates to international economic and financial considerations? I will make a few predictions employing inferential analysis to create three "what if" scenarios. Given the speculative nature of Westergaard scenarios, they are as often wrong as they are right, but you can be sure they are never in doubt.

SCENARIO 1.—DOES Y2K REFLECT GOD'S WILL?

At year 1000 Europe was engulfed with random violence and fear that the world would end. Out of this chaos emerged a new social order as Christianity spread through Northern Europe. Russia converted in 988 followed by Poland, Norway, Iceland and Greenland in 999–1000. By way of background, I refer the Committee to James Reston, Jr.'s recently published "The Last Apocalypse: Europe at the Year 1000 A.D."

Saddam Hussein will interpret Y2K as retribution from an almighty aimed at punishing technological infidels. He will interpret it as a call to attack Kuwait and Saudi Arabia. He will assume with good reason that Y2K will leave the U.S. military incapable of mounting a large scale military response.

The financial and economic impact of a move south by Saddam will be chaos in the world petroleum market, sharply higher oil prices, inflationary pressures and consequent strains on international banking and industrial systems of unpredictable magnitude.

Recommendation.—The DOD should be directed to prioritize Y2K compliance to mission critical systems needed to meet another Saddam challenge. It will be prudent to move troops into the region in late 1999 to counter the risk that continuing Y2K complications following the Millennium turn would render impossible a timely response to Saddam.

SCENARIO 2.—WORLD RECESSION 2000

To understand business cycles, consider traffic backing up 20 miles on the New York State Thruway as drivers rubberneck even the most minor accidents. That is analogous to what will happen to the world economy in 2000. It will back up as transactions of every type—shipments of goods, travel, communications, payments, you name it—will slow down even if only fractionally. It is improbable that a worldwide recession can be avoided under such circumstances. The question isn't, "Will there be a recession?" It is, "How bad will it be?"

Recommendation.—A slowdown in healthcare reimbursement systems worldwide will leave hospitals and other care givers short of cash to pay employees of which there are some 10 million in the United States alone. Emergency funding will be required to provide systemic liquidity. Appropriate legislation needs to be prepared now for introduction in 1999 in the United States and worldwide.

The United States, with the world's most advanced and respected health care system, should exercise leadership in alerting health care officials worldwide to the risk of slow payments and to potential Y2K related risks in the application of medical

devices. Certain devices will be non-functional due to non-compliant software and non-functional chips.

Upcoming confirmation hearings of Richard Holbrooke to the post of U.N. Ambassador will provide the Senate with a forum for recommending that an active role be taken by the United States delegation in alerting member states, the World Health Organization, and other U.N. agencies to Y2K issues.

SCENARIO 3.—BROWNOUTS AND BLACKOUTS

There will be spot shortages worldwide of electrical power. Nuclear generating plants will be shut down to allay public fears of meltdowns. The French economy with its proportionately large 40 percent reliance on nuclear power will be hard hit.

Recommendation.—Conventional power generating plants are less computerized than one might suspect but there will be at a minimum brownouts in the United States and worldwide in 2000. The nuclear issue will be resolved by shutting down nuclear plants over Millennium weekend and bringing them back on stream one by one to assure the public that plants are safe. The Department of Energy needs to take a leadership role promoting Y2K awareness of energy related Y2K issues domestically and abroad.

These scenarios represent no more than a passing insight into the Y2K problem. I have not touched on Japan, the second largest economy, which remains in abject denial over Y2K, nor on China with the largest population. China on the one hand benefits from a proportionately low level of computer dependency but suffers from employing large amounts of pirated software leaving it without access to vendor assistance for remediating code.

I could go on for the rest of the morning. More than 1,000 pages of information, research, analysis and commentary covering every aspect of the Y2K Problem can be found at our webzine, Westergaard Year 2000 (www.Y2ktimebomb.com). I trust the Committee and its staff will employ this resource, register there for our free daily email alert service, and feel free to contact me and the editors via email or phone any hour, any day, anywhere.

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[October 21, 1997]

GOOD SHOW, ARTHUR, BUT WHAT YOU NEED TO DO IS TAKE IT TO THE WHITE HOUSE

(By John Westergaard)

As a Williams College freshman in the fall of 1949, two individuals stood out for me in the sophomore class—George Steinbrenner and Arthur Levitt.

Steinbrenner stood out because he was a big shot, a bully type, and a wannabe jock. Levitt stood out because his father was or was about to become Controller of New York State. (I can't quite recall which). In any event, unlike Steinbrenner, Levitt seemed like a nice fellow.

I came to know Arthur when he joined Carter Berlind Weill and (subsequently) Levitt, the hotshot brokerage firm that eventually took over Hayden Stone. For a while the merged firm was called CBWL-Hayden Stone which Wall Street wags immediately christened "Com Beef With Lox." Hmmm. Typically names become acronyms. This was an acronym that became a name (of sorts, admittedly).

Arthur is a classy guy and congratulations to him for the work the SEC, which he now heads, is doing re the Year 2000 problem. In July, the SEC issued a report on the subject, and just last week, Arthur addressed the urgency of the Year 2000 Problem for the financial and investment community in a speech before a gathering of distinguished representatives from the International Federation of Stock Exchanges. He said that Y2K should be "on the top of the list" of all their outstanding IT issues. Way to go Arthur!

There are two SEC documents readers should take a look at if you're in finance or if you're in anything having to do with public companies or mutual funds. The main document issued last summer is titled "Readiness of the United States Securities Industry and Public Companies to Meet the Information Processing Challenge of the Year 2000". The second document, was issued this past October 8. It reminds corporations and the mutual fund industry in no uncertain terms that they'd better be disclosing the extent of their Y2K problems in their 10K's, 10Q's and via 8K's or they're going to find themselves in trouble.

And meanwhile, Arthur, why don't you knock at the Oval Office and tell "you know who" that the Y2K Millennium Meltdown is taking him on a path to outdo Herbert Hoover as the worst President of the 20th Century, maybe the worst ever, for failing to address the problem, his August 15 "don't worry about the computer clock problem" statement notwithstanding.

As for Steinbrenner, I ask of him: "George, why don't you pull a Ross Perot and get the Florida Marlin's star pitcher Livan Hernandez' brother out of Cuba? Remember when Perot sent a private commando team into Iran to rescue his employees. There's a model for you, George.

"The brother is supposed to be better than Livan. Get him into your rotation next year. Now, that's box office, George, and probably a pennant to boot. Imagine the opening game of the 1998 World Series with the two brothers squaring off. Hmmm. Can't you just taste it?"

[November 11, 1997]

WHY MIXING LAWYERS WITH GOVERNMENT IS DANGEROUS TO OUR HEATH

(By John Westergaard)

A pet game of mine is guessing whether politicians I'm hearing for the first time on TV talk shows are lawyers or not by listening carefully to their language. Lawyers use language that subtly in one way or another hedges their positions. It goes with being a good lawyer. They never speak from the shoulder. You can always spot them.

Lawyers also tend to look back better than they look forward. That's because the nature of their profession is to be mostly concerned about covering their and their clients' backsides.

Consider the Y2K problem as it is playing out in Washington. Note that only one of the eight players down there who seems to comprehend the dimensions of the problem is a lawyer by background. That's Senator Al D'Amato of NY. The rest come either out of academia—Senator Pat Moynihan (D-NY) and Representatives Steve Horn (R-CA) and Constance Morella (R-MD)—or out of business and industry: Senator Bennett (R-UT) (management consultant), Jim Leach, IA (propane gas), Arthur Levitt, SEC (publishing/Wall Street), and Carolyn Maloney (NY) (domestic engineer).

Now do we understand why it is that the lawyers populating the White House and ubiquitous throughout the administration are not emotionally and intellectually equipped to comprehend the Y2K problem? Is it not obvious why the administration appointed Sally Katzen, a middle ranking regulatory lawyer with zero management credentials, as Y2K "czar" responsible for the entire Federal Government's response to the Y2K crisis?

Sally Katzen in charge of a crisis that will dwarf the S&L brouhaha of the 1980's? Can't one imagine the scene in the oval office, August 1996, as Senator Moynihan's now famous letter arrived on the President's desk:

Mr. ICKES: "Mr. President, there's a letter from Moynihan. There seems to be some cockapithy problem called the Y2K Millennium Bug. Leave it to Moynihan to come up with something way out there I've never heard about."

Mr. PRESIDENT: "A bug? Where? In the Lincoln bedroom? Call the exterminators for chrissake. What? Oh, oh that—the computer clock problem? Yeah, I heard about that. Better cover our ass. Be sure to put a lawyer in charge. Hillary has a friend over in OMB who needs visibility if she's going to get a serious job when we're out of here. Give it to her."

Hmmm.

P.S. Some of my best friends are lawyers!

THE WASHINGTON INTERPRETER—ARCHIVE OF PREVIOUS INTERPRETATIONS

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WI 26—Infrastructure and Interdependencies
 WI 25—An Increase in Federal Y2K Awareness
 WI 24—Congress Discusses Y2K
 WI 23—Y2K Activity Heats Up in Washinoton
 WI 22—Senate Establishes "Special Committee on the Year 2000 Technology Problem"
 WI 21—Y2K Issues and Recent Developments in Congress

WI 20—A Seminal Event: The President Acknowledges Moynihan As First to Bring Him Y2K Problem

1997

- WI 19—Worried About Flying Millennium Weekend? Then Try This On For Size: Any Idea How Close Americans Came to Not Being Able to Fly Anywhere Over Thanksgiving?
- WI 18—Congressman Horn's Quarterly Y2K Assessment Indicates that if the Department of Transportation Has Its Way, Planes May Not Be Flying Until 2010
- WI 17—Note to the Fed Chairman: The Chips Don't Fit the Old Motherboard and the Old Motherboard Doesn't Fit the Valves
- WI 16—Dear Harold: How Can it Be That a Problem as Ubiquitous as the Y2K Millennium Bug Doesn't Wend Its Way Into the Consciousness of the Oval Office?
- WI 15—Ultimate Irony: The President Is Advised To Tell Europeans What To Do About the "Millennium Timebomb?" Hmmm * * *
- WI 14—Can Any of Us Imagine the Vilification That Will Be Heaped Upon This Administration and Congress If Social Security Is Unable To Process Disability Payments Come Year 2000?
- WI 13—Why Mixing Lawyers With Government Is Dangerous To Our Health
- WI 12—Saddam Hussein Licks His Chops As Y2K Meltdown Draws Nigh
- WI 11—Folly, Folly. That "Filthy Haze Over Kuala Lumpur As Proxy For The Millenium Meltdown
- WI 10—Good Show Arthur, But What You Need to Do is Take it to The White House
- WI 9—In Which I Spend the Morning Downloading and Sorting Out REP # TIRNO-98-R-00001
- WI 8—Bring Back Gordon Macrae
- WI 7—Y2K and the IRS: "Could Be Catastrophic" Says GAO
- WI 6—Is McDonough Greenspan's Stalking Horse?
- WI 5—Westergaard Year 2000 Fearlessly Presents and Explains Some Provocative Predictions
- WI 4—Moynihan Letter Highlights OMB/GAO Rift
- WI 3—Worried About Y2K? It's O.K. Everybody—Big Daddy Says Don't Worry!!!
- WI 2—An Open Memorandum to FedEx CEO Frederick Smith
- WI 1—The President Fiddles While Washington Smolders

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

STATEMENT OF TREASURY DEPUTY SECRETARY LARRY SUMMERS

Mr. Chairman, and members of the Committee, the Department of the Treasury wishes to thank you for conducting this important hearing and supports your efforts to review the year 2000 problems and its ramifications on international banking and finance. Unless fixed, year 2000 problems will pervade every aspect of our financial system, including the settlement of financial trades, the processing of routine financial transactions, and the dispensing of funds by ATM systems.

All financial firms are potentially at risk. Even those entities which act responsibly to renovate their own systems can still be harmed, because of the intertwined nature of the financial system—a failure by a counterparty, supplier or vendor can have a negative impact on an otherwise solvent firm. If the failures are widespread, they can pose a threat to central markets such as an exchange or clearinghouse.

Today's hearing on this issue comes at a propitious time. There has been a flurry of international action on the year 2000 matter over the past few months. Two weeks ago, the United Kingdom hosted a meeting of experts from the Foreign Ministries of the G-8 countries to discuss the year 2000 issue and trans-boundary issues. At that meeting, each country provided a brief overview of its domestic efforts, along with an analysis relating to progress in other countries. Other international fora, including the World Bank, OECD and regional organizations are also undertaking significant programs to help in the coordinate international activities in this area.

U.S. SUPERVISORY ACTIONS

In the United States, financial regulators have taken steps to encourage firms to properly address the year 2000 issue.

The U.S. Securities and Exchange Commission now requires public companies to disclose year 2000 problems in their corporate filings, which can help investors assess the impact of year 2000 on a firm's market value. Among other things, the SEC now requires a public company to disclose the fact that it has not made an assessment of its year 2000 issues. In addition, a public company must describe material year 2000 issues and disclose the nature and potential impact on the firm, including its general plans to address them. This disclosure, which is potentially a very powerful incentive-based approach, is designed to induce market pressure on public companies to take appropriate corrective measures.

Similarly, U.S. bank regulators now routinely review year 2000 issues when they conduct examinations of federally supervised banking institutions. The examinations are designed to:

- determine whether the organization has an effective plan for identifying, renovating, testing, and implementing a year 2000 solution;
- assess the effect of year 2000 efforts on the bank's strategic and operating plans;
- determine whether the organization has effectively coordinated year 2000 processing capabilities with its customers, vendors, and payment systems partners;
- assess the adequacy of internal controls for the year 2000 process; and
- identify whether further corrective action may be necessary.

CONCERNS OUTSIDE THE UNITED STATES

In the United States and elsewhere, the financial services industry appears to be ahead of other major industry sectors in addressing the year 2000 problem. Financial firms are working hard to renovate obsolete systems in such large financial centers of the United States such as New York and Chicago, as well as in other major market jurisdictions such as London and Frankfurt. Leading international financial firms have already started internal testing, and industry-wide testing programs are scheduled for next year.

However, it is very difficult to assess the effectiveness of the renovations programs currently under way in each country. Each country faces unique difficulties as it searches for an effective solution to the problem. In Europe, for example many countries in the European Union must handle conversion to the Euro currency simultaneously with the year 2000 problem. Japan is undertaking major changes to its financial system, which could also affect its year 2000 compliance effort. Other Asian countries must deal with more immediate threats to their economies.

Outside the major financial centers, the problems caused by year 2000 may be greater. In these countries, it may be more difficult to finance the cost of hiring programmers to fix the problem, or even to identify the systems which need renovation in the first place. On the other hand, the fact that many underdeveloped countries have not automated to the same extent as the United States means that there are not as many systems which can fail. Moreover, the systems which are in place in such poorer countries have often been purchased more recently—and are therefore more likely to be year 2000 compliant—than computer systems installed in many parts of the advanced industrial nations.

SUGGESTED STEPS FOR OTHER COUNTRIES

Each country will have to implement its own solution to the year 2000 problem, based on the particular circumstances, resources and problems relevant to it. However, there are some fundamental premises which many experts believe each country should keep in mind as it implements a year 2000 compliance effort. In particular, there are three fundamental issues—inventory/assessment, renovation, and testing.

First, authorities in the computer area believe it is helpful for each country to assess its vulnerability to the year 2000 problem. This should include an inventory of all applications that require modification and an assessment of what renovation measures must be implemented. In the United States, the goal was to ensure that all such inventory and assessment review be completed by September, and regulators are monitoring those financial institutions which failed to meet this deadline.

Second, experts agree that each country should follow assessment with a renovation phase, where individual software programs are modified to ensure year 2000 compliance. It is critical that firms prioritize their efforts so that the most critical applications receive priority attention, followed later by software programs which would have a more limited impact on the firm in the event of a year 2000 failure. Most United States firms currently are undertaking their renovations programs, which should be largely completed by December 1998.

Third, and equally important in the eyes of virtually all professionals, is the testing phase, which individual countries should mandate for firms in their jurisdiction. The importance of such testing programs cannot be overemphasized, since even skilled programmers can overlook critical tasks. External testing should include tests with both single counterparties and multiple counterparties. In the United States, such testing is expected to begin no later than December 1998, but external testing necessarily requires the cooperation of governments and firms in other countries.

WORK IN OTHER INTERNATIONAL FORA

Because of our concern with respect to the progress that other nations are making in the year 2000 area, Treasury began a major effort to raise the profile of the issue and act as a catalyst for action in many countries. Treasury submitted a paper on the year 2000 issue in March 1998 to the G-7, which called on the G-7 countries to implement comprehensive year 2000 programs in each of their jurisdictions, and to help other countries as well. We have since worked with other countries to ensure that the year 2000 issue was placed on the Birmingham summit agenda. The May 8 G-7 Finance Ministers' conclusions called on the international regulatory bodies (i.e., the Basle Committee on Banking Supervision, the International Organization of Securities Commissions, the International Association of Insurance Supervisors, and the Committee on Payment Systems and Settlement) to "monitor" private sector efforts, and "to do all that they can do to encourage compliance." As discussed below, these entities are taking up the year 2000 challenge and are actively assessing and monitoring year 2000 compliance efforts by financial firms in their respective industries, rather than merely "raise awareness" of the problem.

Subsequently, on May 17, the G-7 Heads of State and Government met and called on countries to work together to solve the year 2000 issue, and expressly asked international organizations, including the World Bank and the Organization of Economic Cooperation and Development (OECD) to help solve the problem.

Treasury also raised year 2000 in other international fora. In late May, Finance Ministers at the Asia Pacific Economic Cooperation forum (APEC) discussed with private sector representatives the importance of resolving year 2000 problems in APEC economies in a timely manner. They also urged the World Bank and the Asian Development Bank to help countries to address this issue, and domestic supervisory and regulatory authorities in the region work with the international regulatory bodies to implement measures to resolve this problem. The year 2000 issue was also included in the Joint Ministerial Statement of the Summit of the Americas Finance Ministers' meeting in Chile last December, and Treasury is continuing to encourage this regional grouping of North and South American finance ministries to work with its member countries in implementing effective solutions to the problem.

WORK OF THE INTERNATIONAL REGULATORY BODIES

The international regulatory bodies have established the Global Year 2000 Council, and they are taking action to coordinate financial aspects of the year 2000 issue. The Year 2000 Council's efforts were kicked off in April, following a conference of world leaders on the Year 2000 problem held in Baste, Switzerland. That conference was helpful in further raising awareness of the year 2000 issue. We are in the process of designating a Treasury liaison to the Year 2000 Council to be kept informed of and promote their efforts to undertake an active program of monitoring and assessing the situation, and to develop appropriate remedial steps where it is apparent that a particular country or group of countries has fallen behind in its year 2000 program.

Other organizations, particularly the OECD, take part in the task of coordinating some of the most significant non-financial aspects of the year 2000 problem, such as telecommunications and power grids, where a disruption to communications or power grids could cause general economic harm.

ROLE OF THE IFI'S AND THE MDB'S

Treasury is paying increasing attention to the role which the World Bank and the International Monetary Fund, as well as regional multilateral development banks such as the Asian Development Bank, Inter-American Development Bank, and the European Bank for Reconstruction and Development, could play with respect to the year 2000 issue. In our discussions with these entities, we are generally satisfied that they are taking reasonable measures to assess and renovate their own internal systems and we applaud their foresight in this regard. Among other things, it appears that all of these institutions have taken steps to assess their mission critical systems, and they are well under way with respect to renovating or replacing obsolete systems which will not be compliant.

We are also actively encouraging the international financial institutions (IFI's) to consider a full range of policies which they could undertake in conjunction with their client countries. We hope to ensure that all projects and programs which these organizations finance are year 2000 compliant. On June 15, CIO's of all the IFI's met to share views and experiences on potential year 2000 computer problems and to explore ways to provide technical assistance to their member countries.

CONCLUSION

There is no easy cure for the year 2000 problem. Like many other issues, the year 2000 issue will require a great deal of diligence, planning, and plain hard work so that countries prevent critical systems from failing. Treasury is working in a range of international fora to help promote appropriate solutions.

But while various international institutions, and the Treasury, can assist the year 2000 effort underway in various countries, at the end of the day each country will have to put in place its own solution to the problem and take responsibility for any failures. We must be realistic about the fact that the year 2000 problem is a novel event, and we cannot foresee all of the complications which might arise. Therefore, we cannot entirely rule out the possibility of disruptions to the financial system and other sectors of the economy, both in the United States and elsewhere. The key is to manage the risks, by prioritizing those systems which absolutely must be in working order while devoting lesser resources to other areas, and putting in place appropriate contingency arrangements to reduce the harm of any failures that do occur.

We are well underway with this process in the United States, and we are hopeful that other countries are making similar progress with respect to renovating and testing their computer systems to take account of the year 2000 problem. This hearing is very useful to that process, as they can help raise awareness and ensure that all relevant entities employ their best efforts to solve the problem

